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THE CLINICAL MANAGEMENT OF WEAKNESS AND FATIGUE

FRANK N. ALLAN, M.D.
BOSTON

The patient who seeks advice because he feels weak and tired seldom realizes the complexity of the problem he presents to his physician. Unless he fears carcinoma or tuberculosis or is the type of person who enjoys receiving medical attention, he may think that he need not take up much of the physician's time for examination. All that he desires is a recommendation of a good tonic or vitamin preparation. Actual experience with the problem shows that there may be need for investigation utilizing all the resources of medical science.

DIAGNOSIS

In a study recently reported elsewhere [1] an analysis was made of the findings in 300 cases in which examination was requested because of a complaint of weakness, fatigue or weak spells. Physical disorders were found to explain the complaint in 20 per cent; nervous conditions were held responsible in 80 per cent.

The diagnosis of the physical disorders concerned with these complaints could be made by history and examination in approximately half the cases; in the remainder laboratory tests and roentgenograms were needed to reveal hidden disease or confirm a diagnosis which might otherwise be uncertain. The selective use of laboratory tests and roentgenograms also aided in the exclusion of physical disease.

Physical disorders of twenty-four types were encountered (chart 1). The most common conditions were chronic infections, diabetes, heart disease, severe anemia, nephritis and various neurologic disorders including narcolepsy and myasthenia gravis. Tuberculosis was, of course, represented among the infections, but nontuberculous pulmonary infections and their sequelae were more frequent. Weakness sometimes persists for a prolonged period after the activity of any serious infection has subsided. Certain conditions such as vitamin deficiencies and endocrine disorders, considered common causes of weakness by both the public and the medical profession, actually were rare (0.3 and 1.3 per cent respectively) and not a single case of weakness due to liver trouble, "poor elimination" or low blood pressure was encountered.

Of the 239 patients whose weakness and fatigue were attributed to a nervous condition, the patient was considered neurotic in less than 1 out of 5 (chart 2). A small number (6 in all) had simple mental depression. The majority were suffering from what may be termed "benign nervousness." This was classified as chronic nervous exhaustion when severe and prolonged and as nervous fatigue when mild. Although no sharp line divides the three groups, it is important, as will be pointed out later, to make a distinction in order to plan the most effective treatment and evaluate the prognosis.

DIAGNOSTIC PROCEDURES

To deal with weakness and fatigue successfully, the diagnosis must first be made accurately and completely. Except in the case of myasthenia gravis, the complaints are almost entirely subjective. History taking must therefore be thorough and systematic. The history must often be reviewed more than once in order to secure all the essential facts. A good history followed by the general physical examination may alone lead to a correct diagnosis or at least point to pathways which additional investigation may profitably follow.

Urinalysis and determination of hemoglobin, red and white blood cell count, examination of the blood smear and a test for syphilis are always required. The blood sedimentation rate and the agglutination test for undulant fever should be determined when there is suspicion of a hidden infection. A roentgenogram of the chest should always be secured of young people who feel tired and should also be advised for older people who have had a past history of pleurisy, contact with tuberculosis and any respiratory symptoms such as cough. A record of the daily temperature for at least three days may also be of considerable value in cases in which infection is suspected.

Special laboratory tests which may be indicated in certain cases include the metabolism test and blood cholesterol determination for thyroid disease, blood sugar tests for hyperinsulinism or hypoglycosis, roentgenologic examination of the head for pituitary tumor, the water test for adrenal deficiency,[2] the neostigmine and quinine tests for myasthenia gravis and the electroencephalogram for psychomotor epilepsy.

RECOGNITION OF NERVOUS STATES

The diagnosis of nervous states need not be deferred until all possibilities of organic disease have been eliminated. A patient with heart disease, diabetes or asthma, for example, may complain of weakness which has no relation to these conditions. Nervous conditions should be recognized by their positive characteristics, and if both a nervous state and organic disease are present they should both be identified and given appropriate attention.

From the Department of Internal Medicine, the Lahey Clinic.

Read before the Section on Practice of Medicine at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 14, 1944.

1. Allan, F. N.: The Differential Diagnosis of Weakness and Fatigue, New England J. Med. **231**: 414-418 (Sept. 21) 1944.

2. Robinson, F. J.; Power, M. H., and Kepler, E. J.: Two New Procedures to Assist in the Recognition and Exclusion of Addison's Disease: Preliminary Report, Proc. Staff Meet., Mayo Clin. **16**: 577-583 (Sept. 10) 1941.

There are four pathognomonic features of weakness and fatigue arising from a nervous state:

1. Weakness greater in the morning, wearing off during the day.
2. Variability from day to day without change in activity to account for the difference.
3. Immediate benefit from the use of slowly acting medication such as thyroid, vitamins, liver extract, iron and digitalis.
4. Immediate relapse on omission of customary treatment with these drugs.

Four other features are of probable importance:

1. Lifelong ill health.
2. Complaints of more than three years' duration without any physical disorder to account for them.
3. Symptoms obviously nervous in origin such as a lump in the throat and difficulty in getting a satisfying breath.
4. Nervous behavior such as flushing and weeping.

Two additional features are of possible importance:

1. A family history of "nervous breakdown."
2. A personal history of unusual nervous strain.

There are at least eight points of difference between the neuroses and the benign nervous condition. The neuroses are predominantly due to intrinsic causes. There is a background of constitutional inadequacy. A family history of nervous or mental breakdown is common. The complaints are usually multiple. The history is changeable; emphasis is placed on different points at different interviews. The onset is vague. The duration is commonly since childhood. On the other hand, "benign nervousness" is largely due to extrinsic factors. An average person acquires a nervous state because of unusual stress and strain. He can usually give a straightforward consistent history. His complaint is of limited duration and he can date the onset. The reaction to reassurance is likely to be decidedly different. The person with "benign nervousness" feels pleased if told that the examination shows no physical disorder; the neurotic person is disappointed.

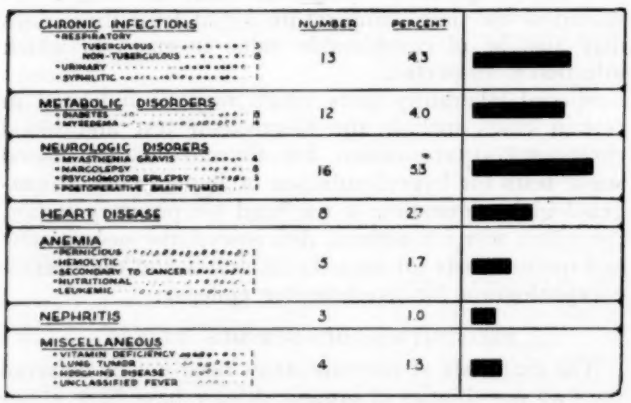

Chart 1.—Physical disorders in 61 of 300 cases, 20 per cent.

TREATMENT

The treatment of patients suffering from weakness and fatigue must, of course, be determined by the results of the diagnostic study. In some cases it is possible to prescribe therapy which is more or less specific, such as liver extract in pernicious anemia, diet and insulin in diabetes, and thyroid tablets in myxedema. For the nervous patient, removal of a cause of needless anxiety is equally specific.

In certain cases expert psychologic and psychiatric assistance should be sought. The cases referred for psychiatric consultation should be selected with discrimination. One does not refer all patients with a cold to a nose and throat specialist nor all persons with tachycardia to a cardiologist. To refer all patients with nervous problems to a psychiatrist is not feasible, necessary or desirable.

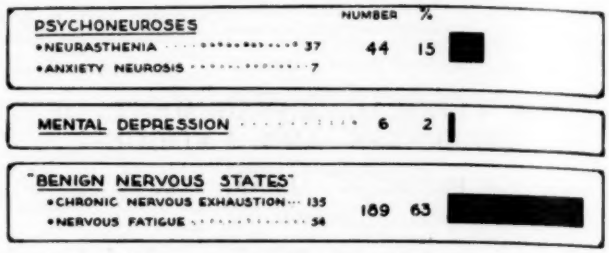

Chart 2.—Nervous disorders in 239 of 300 cases, 80 per cent.

Ordinary superficial wounds free from infection heal naturally without daily dressings and frequent probing. In like manner the ordinary nervous and emotional strains of everyday life subside and their effects disappear without psychiatric treatment.

The contributions of psychiatry are welcome, but it may be pointed out that the psychiatrist often does not possess the best qualifications to deal with minor nervous and mental problems. In fact, the psychiatrist whose background is largely concerned with institutional care of patients with major mental disorders may be unsuited for this type of practice. He has limited personal contact with these minor problems approaching the borderline of his specialty.

Patients frequently resent the suggestion that they see a psychiatrist, sometimes rightly so. However well intentioned his efforts may be, the attempt to secure a psychiatric history is not always helpful and is sometimes objectionable. The fact that a patient has a nervous complaint does not justify intrusion into all the recesses of his private life. The objections of patients are supported by good psychologic reasons. Contrary to the idea, currently popular, that past emotional and psychologic trauma should be brought to light, it should be asserted that it is often better to avoid such remembrance. It is important to recognize the nervous state, but it is not always essential to treatment to analyze its origin. A surgeon can deal with a fracture without making inquiry into the details of the automobile accident during which it occurred.

No one type of psychotherapy is suitable for all cases, and the circumstances must guide the psychologic approach. Nervous problems often solve themselves while treatment is directed at some other condition, present in fact or in fancy. This psychologic fact, which represents the chief resources of chiropractic, osteopathy and other cults, deserves consideration in the comprehensive program of the practice of medicine.

Nervous problems are often solved best of all by religion, which gives the afflicted person a new interest in his present life and faith in the future. The church may contribute threefold assistance—the pastor giving his personal counsel, the institution providing fellowship and, finally, the challenge to a better way of living, subordinating interest in self and personal difficulties. The special help which clergymen may give in the care of the sick has been recognized in certain semi-

naries which now give "clinical" training as a part of theological education.

Every nervous patient must be given a chance to tell his complete story. This can be accomplished not merely by avoiding haste but by establishing a friendly relationship which enables the patient to express his feelings without embarrassment.

Early reassurance and encouragement help tremendously except in dealing with a neurotic patient. This type of person resents a superficial optimistic attitude in regard to complaints which to him seem so serious and disabling. The physician must use all his tact, patience and resourcefulness. He first must convince him that he has a good understanding of the profound effect of the symptoms before he can explain that they are harmless.

The patient with a mental depression is also not receptive to reassurance. It is seldom helpful to spend much time in discussion beyond a statement of the facts concerning the present and expression of the rule that the cycle of mental depression will run its course in time.

Confidence in the physician and his methods is vitally important in all cases. Often the determination of the precise diagnosis marks the first step in recovery. It is not necessary for the patient himself to understand it, but he must have confidence that the physician understands what is wrong.

Some patients need a friendly shoulder on which to weep, a sympathetic ear to receive a recital of worries and fears; some people are like a clock which requires winding every so often. Any physician who is sincerely interested may provide this help. Nervous people deserve interest and not scorn. As patients they may be tiring, but they often possess charm and talent and form a valuable element in society.

Patients who are actually disabled by nervous problems, whose complaints are of long duration and patients who reveal loss of confidence in the prospects of recovery and lack of confidence in the medical adviser should be selected for psychiatric consideration. Psychotherapy is relatively ineffective in cases of mental depression, but when of profound degree causing complete disability, psychiatric consultation should be advised and the possibility of benefit from electric shock therapy should be considered.

The prognosis with regard to functional nervous disorders can perhaps best be illustrated by the following analogies:

A person with "benign nervousness" is like a ship which has run aground because of stormy weather or has struck a sand bar because it is overladen. A shift in the wind, a change in the tide or the unloading of part of the cargo enables it to proceed on its voyage.

A person with mental depression is like a ship frozen in the ice. It will remain there until the spring thaw unless freed by dynamiting (as with electric shock therapy or some unusual psychologic experience).

A psychoneurotic person is like a ship adrift because the engine, rudder or other mechanism has broken down on account of defective construction. Expert engineering skill (psychiatric assistance) may be needed to get it functioning again, but the prospects of lasting success depend most of all on the seriousness of the intrinsic defect.

NONSPECIFIC TREATMENT

In all cases nonspecific measures must be given attention. Patients seek and actually need detailed advice with regard to a suitable regimen, providing a balance between work and recreation and sleep. A vacation or a change of work should not be recommended unless readjustments to the present circumstances prove ineffectual. Decreased activity does not always mean actual rest. Some patients may need advice regarding the technic of relaxation. A few may find help in reading books, pamphlets and outlines of instructions. Reading has definite but limited value for the majority of patients. It appeals to some, but all may be helped much more by direct counsel from the physician.

Many patients need advice about the diet and may receive benefit even when there is no evidence of dietary deficiency. Treatment with vitamins may be definitely advantageous. They should be prescribed when the circumstances in regard to work and other matters make it difficult to secure nutritious meals. Whenever possible, it is much better to point out how the diet can be improved with perhaps the expenditure of less money than would be needed to purchase vitamin preparations.

Other medication may be of distinct value. It has become the fashion to deplore the use of drugs in dealing with nervous disorders. The objections come chiefly from those who have least contact with patients in their home environment and consequently have little understanding of their personal difficulties. Practicing physicians who realize their value are likely to be apologetic. There is, however, no reason to scorn the use of sedatives and other drugs. In this field, as in cardiology, drugs, although not curative, can be used with great benefit, provided they are used with judgment.

A prescription of a sedative should never take the place of a conscientious effort to determine the cause of the condition which demands treatment. The proper choice of a sedative is highly important. Phenobarbital in small dosage is best used for relief of constant nervous tension. It is much to be preferred to the use of bromides, formerly so popular. To aid sleep at night, one of the quick reacting barbiturates with shorter duration of action is preferable. Finally, one important part of the directions should never be omitted. The patient should be told when to stop the medication.

Stimulating drugs have more limited usefulness. Amphetamine or desoxyephedrine is sometimes of value in giving temporary relief from exhaustion or drowsiness. In the case of narcolepsy, such treatment can be used indefinitely with success. In other cases there is not often a desire to use the drugs constantly. In the occasional case thyroid tablets may have a nonspecific tonic effect, but even when there is a low metabolic rate there is usually no benefit unless the low metabolism is really due to thyroid deficiency.

SUMMARY

The management of weakness, fatigue and weak spells demands careful diagnosis. In a series of 300 cases presenting these complaints, a physical disorder was found responsible in 20 per cent and a nervous condition in 80 per cent.

For many of the physical disorders, treatment which is more or less specific is available. For a nervous patient, removal of a cause of worry is also a specific remedy. As with the physical disorders, the nervous conditions require proper classification to guide treatment and indicate prognosis. A psychoneurosis was present in less than 1 in 5. A small number had a simple mental depression. The majority had a benign

nervous condition classified as chronic nervous exhaustion when extreme and prolonged, and as nervous fatigue when of lesser degree. With each type a different therapeutic approach must be employed.

Psychotherapy and nonspecific measures must be adapted to suit the needs of the individual case. Special psychiatric care is desirable in dealing with many of the cases of psychoneurosis, some of the cases of mental depression and a few of the cases of chronic nervous exhaustion. Most of the benign nervous conditions do not properly fall within the field of psychiatry. They represent a challenge to all of us engaged in the practice of medicine.

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ABSTRACT OF DISCUSSION

Dr. Walter C. Alvarez, Rochester, Minn.: Perhaps 1 of every 4 of my patients complains of fatigue and wants a focal cause found: one that can be eradicated. In the cases of the young or the old something like that may be demonstrable, but in most cases, especially of those many women who have felt tired for years, I can't find any focal cause and I don't expect to. Many women are supposed to have fever, but this is 99.6 F. in the afternoons, and every nervous woman should have that when she is upset or worried. Many have a basal metabolic rate of —15 per cent but that, again, is normal for a thin frail nervous woman, and the taking of desiccated thyroid only makes her more jittery. Many are supposed to have some endocrine disturbance, but they show no sign of it that I can recognize. Some persons have earned fatigue through overwork or living under great strain. Their fatigue comes at the end of a hard day. Most of the persons who complain most bitterly of fatigue haven't earned it by overwork. They wake fatigued and feel better toward evening. What is the matter with all these tired people? Many are constitutionally frail or inadequate to stand up to the strains of life. At the worst the patient is a "relative of the insane" and his feelings of painful fatigue represent his share of a bad nervous inheritance. Some persons tire themselves out by fretting and fussing and worrying or having needless debauches of emotion over little happenings or needless conflicts with people about them. They wear themselves out. In older people who suddenly break down one must always think of the possibility of a mild "stroke" which did not involve any center for face or hand or arm. Since most people die slowly from the cumulative effects of episodes of cerebral arteriosclerosis, such little strokes must be common. Unfortunately, as yet they are not recognized often enough. A large percentage of the patients referred to me with supposed gastrointestinal troubles are really suffering from an unrecognized nervous breakdown. The patient failed to tell his physicians that for months or years he was too nervous and tired to work, too jittery to meet people and too restless to sleep or to read or to go to a movie or perhaps even to listen to the radio. Such nervous breaks should promptly be recognized and the causes determined. Then treatment should be directed more at relieving the nervousness than the vague indigestion.

Dr. Benjamin F. Sieve, Boston: I must disagree with Dr. Allan as to the diagnosis of neurosis or benign neurosis in 80 per cent of the group. If a detailed history was taken covering the five to ten years preceding the acute illness, the diagnosis of neurosis would be changed. The necessity of extremely detailed history in diagnosing abdominal conditions is true for any group of cases. I refer particularly to a group like Dr. Allan's with complaints of weakness, fatigue irritability, some constipation, occasional insomnia and increased nocturia over a period ranging from six months to five years before consultation. Detailed study, including physical and laboratory findings, frequently reveals minute changes which constitute a definite physiologic deficiency. The basal metabolic rate may range from minus 8 per cent to plus 15 per cent, with low blood pressure, low pulse rate, 48 to 60, and temperature as low as 94.8 F. The heart is usually slightly enlarged, the vital capacity decreased and urinary output sometimes diminished. These patients usually have dry skin, dry hair and somewhat atonic muscular development. Foci of infection may be frequently revealed, especially in the prostate. Although laboratory studies reveal little change from the normal, these slight variations present a definite clinical picture. There may be just a slight decrease in the red cell count, say to 4,000,000, hemoglobin 68 to 76 per cent, white blood cell count 4,000 to 5,000 suggesting a leukopenia, and smear showing relative lymphocytosis. These factors indicate a subclinical type of hypothyroidism, not true myxedema or hyperthyroidism. Usually there is concurrent subclinical vitamin B complex deficiency, suggested in part by atrophic papillae of the tongue and perhaps leukoplakia of the buccal mucous membranes. When foci of infection are cleared and substitution therapy is administered to produce physiologic balance, these patients lose all complaints in two to three months. If the indicated hormones and vitamins are used, sedation is never necessary. Eradication of foci of infection should be emphasized, since infection interferes with the absorption of vitamins and hormones. I believe that many of Dr. Allan's so-called neurotic group, if studied in detail from the point of view of physiologic deficiency, could be helped by substitution therapy. In my own experience with similar cases at least 60 per cent were entirely relieved of symptoms.

Dr. Walter Freeman, Washington, D. C.: The presentation of Dr. Allan and the discussion of Dr. Alvarez bring to a focus the hard working individual who is feeling the strain. It is common for a man or a woman of this type to have a breakdown. How much better it is for him to have a nervous breakdown at the age of 40 than a cardiovascular breakdown at the age of 60. A nervous breakdown teaches an individual —and it is fine education—how much he can get out of his own machinery, what the signs of overstrain are and what to do about it. These people are weak. Their knees are weak. They feel dizziness in the head. You can produce these symptoms in two minutes. If you want to demonstrate to the patient and to yourself how these symptoms develop just have him stand up by your desk, open his mouth and breathe, one minute, two minutes, three minutes, and he will be ready for collapse. Have him sit down, hold his nose and let him pile up a little carbon dioxide in his system and the symptoms disappear in a few minutes. William J. Kerr of San Francisco called attention to this test. It is a useful one in sorting out these people, who have emotional hyperventilation with various functional symptoms. Now what are you going to do for them? Rest? The worst thing in the world. When their muscles are resting their brains are working and they are working overtime. You watch these people opposite your desk and they are sitting in their chairs and they can't get their breath. "Doctor, I feel so tight here." What are they doing? They are hyperventilating all the time and they don't realize it and their relatives don't realize it. Emotion makes them overventilated. The way to handle a good many of these cases is a matter of exercise—cold bathing, horseback riding, long walks. These patients start off on a walk; they are tired, they are exhausted, they cannot walk more than half a block without having to sit down to rest. This is where the persuasive powers of the physician come in. He will tell them this is not a true fatigue. It is a false fatigue, a nervous fatigue. "You must push yourself beyond that," he says. "Get your second wind. Walk your 5 miles the first day and keep on as long as your feet don't get sore, and after a week you will be sleeping better and be more relaxed." What the patient is doing during this physical activity is building up a certain amount of carbon dioxide and overcoming the subclinical tetany which is such a devastating factor in this weakness. When their muscles are working their brains are resting.

Dr. Frank N. Allan, Boston: I agree with Dr. Sieve that the problem of fatigue does, indeed, deserve detailed study and investigation from the standpoint of endocrine and vitamin deficiencies, but I regret that we find it impossible to help so many patients simply by treatment with thyroid and vitamins. The cooperation of physicians in all fields of medicine is essential to secure the best solution to this problem. There is no one remedy, and certainly the answer has not been furnished by the vitamin capsule.

PHYSICAL IMPAIRMENT AND JOB PERFORMANCE

A COMPARATIVE STUDY OF ACCIDENT EXPERIENCE, PRODUCTION AND EFFICIENCY, SICK ABSENTEEISM AND TURNOVER AMONG 2,858 PHYSICALLY IMPAIRED AND 5,523 ABLE BODIED WORKERS IN GOVERNMENT INDUSTRY

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ACCIDENT RECORDS

Restrictive and so-called protective employment policies with regard to impaired workers in the past have been based mainly on two premises: (1) accident proneness and (2) liability for second injuries. The questions of productivity, efficiency and absenteeism have been secondary considerations.

In early studies on accident proneness in this country, physical defects have not assumed as important a role as the question of human failure—that is, faulty attitudes, failure to recognize potential hazards, faulty judgment of speed or distance, impulsiveness, irresponsibility or failure to keep attention constant.[17] Even in a more recent study, made in a large government department of the unsafe personal factors in lost time accidents, it was disclosed that improper attitude was responsible for 55 per cent of lost time accidents; lack of knowledge or skill was responsible for 21 per cent of lost time accidents, and bodily defects were responsible for only 2 per cent of accidents.[18] The apparent low percentage of accident proneness attributable to physical defects may be due to present inadequate methods of evaluating or investigating preexisting physical defects in the injured employee, to failure in recognizing psychologic as well as organic aspects of disease or to lack of consideration of physical defects as causative factors in fatigue.

Recently Biram and Barton[19] have demonstrated some correlation between suppression of simultaneous binocular vision, impaired stereopsis, exophoria on distant vision and esophoria on near vision and an increase in accident proneness of workers. Kuhn's[20] investigation of accident rate as it relates to visual skill has raised the important question of whether or not visual skill has been taken into proper consideration in the investigation of prevention of accidents. As indicated by a study of a group of workers who had lost time accidents during 1939 in contrast to the plant average, it was found that the percentage of visual defects was higher among those with accidents. Kuhn points out that the problem of accidents as it relates to visual factors in the past mainly concerned itself with accidents to the eyes and protection to the eyes; the emphasis is changing to defective visual function as it relates to accident prevention. Bennett[21] showed that among 42 lost time accidents 39.1 were reported in individuals with some element of subnormal vision. Poole and Bent[8] obtained information on accident proneness as it relates to heart disease. They demonstrated a higher frequency rate among cardiac cases (14.28) as compared with the plant average (7.64), with a lower severity rate among cardiac cases as compared with the rate for the plant. Further investigation of the types mentioned may show a higher percentage of bodily defects as being responsible for accident proneness or that a combination of physical defects with certain psychologic makeups in individuals may be the cause of accident proneness.

The psychologic or human failure element remains the outstanding problem in the diagnosis and treatment of accident proneness. Improvement in safety devices alone will not be adequate to meet this problem. This is borne out by reports made during the last ten years by insurance companies, the National Research Council and the Industrial Board of Great Britain, which show that from 80 to 90 per cent of all accidents are not due to defective machinery, physical or mental defects or to lack of skill but to an *x* factor in the person injured.[22] Carozzi and Stocker,[23] without denying the utility of a safety service in industrial establishments, have placed stress on the necessity of accepting the suggestions of those who understand the "human factor" if prejudice on the subject is to be eliminated.

Farmer[11] has pointed out that accident prone persons can to some extent be detected before employment by means of tests which partially measure certain psychologic functions involved in industrial proficiency and accident proneness. He states further that, if these tests were used in selecting candidates for certain skilled trades in which their value has been proved, those selected would have a lower accident rate and would at the same time be more proficient at their trades than those rejected. The tests are of two types: (1) the esthetokinetic (measurement of sensorimotor coordination) and (2) tempermental (measurement of neurologic and psychologic stability). In connection with these tests, research performed by Farmer and Chambers[24] indicated that there exists no correlation between higher intellectual processes and proneness to accident. Dawson[25] places emphasis on the factor of the employee's personality and general reaction time in accident prevention and considers personality as a tangible factor that can be analyzed and treated. He places responsibility on the industrial physicians and industrial psychologists for analysis of accident proneness of employees, for diagnosis of its component parts and for scientific treatment of causative factors. Dunbar[22] approaches the *x* factor on a psychosomatic basis and indicates that personality profiles will be diagnostically useful in investigating accident habits and proneness. Selling[26] stresses the importance of psychophysical tests of persons in industry and indicates that

17. Primary Causes of Accident Proneness, Percentage Distribution Among 50 Motormen, Woodhill Division, Cleveland Railway Company. The Accident-Prone Employee, Metropolitan Life Insurance Company, 1929.

18. Safety Review, February 1944, vol. 1, number 1, prepared by Safety Engineering Section, Division of Shore Establishments and Civilian Personnel, Navy Department, Washington, D. C.

19. Biram, J. H., and Barton, P. N.: Vision and Accident Repeaters in One Industry, Indust. Med. **13**: 683 (Sept.) 1944.

20. Kuhn, Hedwig S.: Industrial Ophthalmology, St. Louis, C. V. Mosby Company, 1944, pp. 212 and 213.

21. Bennett, R. E.: Indemnity Insurance Company of North America, August 1943, unpublished data; cited by Kuhn.[20]

22. Dunbar, Flanders: Susceptibility to Accidents, M. Clin. North America **28**: 653 (May) 1944.

23. Carozzi, L., and Stocker, A.: The Medical Aspect of Industrial Accidents, Arch. f. Gewerbepath. u. Gewerbehyg. **4**: 14, 1932.

24. A Psychological Study of Individual Differences in Accident Rates, Report 38, Industrial Fatigue Research Board, London, 1926. A Study of Personal Qualities in Accident Proneness and Proficiency, Report 55, Great Britain Industrial Health Research Board, London, 1929.

25. Dawson, A. R.: Physical Fitness: Its Importance in Accident Prevention, Fourth Annual Virginia Statewide Safety Conference, June 4, 1938.

26. Selling, L. S.: Psychiatry in Industrial Accidents, Indust. Med. **13**: 504 (June) 1944.

there are certain jobs in any plant which are dangerous to the person or others in the department if an attempt is made by one with slow reaction time to do the job. This field of testing has been in the hands of psychologists and has received a place of importance in industries where there are a large number of employees in motor vehicle operation. Many such industries have outstanding records for safety.

The commission, in studying the relative accident proneness among physically impaired and able bodied workers, has attempted to determine the effectiveness of judicious placement procedures based on job analysis with regard to minimizing accident proneness and the hazard of second injury among the physically impaired workers. The majority of impaired workers coming under this study have been placed in jobs by matching their defects with the physical demands of the job and environmental conditions, so that they may render satisfactory service without being a hazard to themselves or to others.

TABLE 8.—*Lost Time Accident Experience of Physically Impaired and Able Bodied Workers by Industry*

Industry	Frequency Rate		Severity Rate	
	Able Bodied	Physically Impaired	Able Bodied	Physically Impaired
Total	12.26	16.15	0.20	0.21
Aircraft and installations	10.92	17.22	0.12	0.17
Ordnance activities	12.03	15.94	0.20	0.29
Shipbuilding and ship repair	18.84	18.08	0.39	0.24
Other manufacturing	.....	12.89	....	0.37
Procurement, inspection, storage, supply	36.20	39.68	0.14	0.06
Administrative offices	2.27	.....	0.01	....
Camps, forts, naval training stations	10.30	14.80	0.38	0.02

TABLE 9.—*Lost Time Accident Experience of Physically Impaired and Able Bodied Workers by Occupation*

Type of Occupation	Frequency Rate		Severity Rate	
	Able Bodied	Physically Impaired	Able Bodied	Physically Impaired
Total	12.26	16.15	0.20	0.21
Craftsmen	16.21	20.80	0.20	0.24
Operatives	11.96	18.48	0.16	0.28
Laborers	15.89	19.69	0.36	0.30
Service	5.46	5.19	0.05	*
Clerical	4.78	7.39	0.07	0.07
Others †	....	....	....	....

* Less than 0.05 day.

† Includes administrative, professional, semiprofessional, technical and scientific workers.

Table 8 presents lost time accident experience of physically impaired and able bodied workers by industry. The average frequency rate [27] for the physically impaired was found to be 16.15 as compared to 12.26 for the able bodied. There is little significant difference in the average severity [28] rates of the physically impaired (0.21) and the able bodied (0.20). This would indicate that, although the impaired experienced more accidents than the able bodied, they had proportionately less severe accidents.

Findings on the accident experience of physically impaired workers, by occupation, are given in table 9.

In shipbuilding and ship repair activities, which can be classified as more hazardous types of industry, the physically impaired had a slightly lower frequency rate (18.08) as compared with the able bodied (18.84) and showed a lower severity rate (0.24 as compared with 0.39 for the able bodied).

The frequency rates for the impaired were higher than those of the able bodied in the following industries: (1) aircraft, (2) ordnance, (3) manufacturing (other than aircraft and ordnance), (4) inspection, storage and supply and (5) activities of camps, forts and naval training stations.

In procurement, inspection, storage and supply, the highest frequency rates of any industry occur in both groups of workers (table 12). The severity rate for the physically impaired (0.06), however, was lower than that of the able bodied (0.14).

In administrative offices where occupations were mainly of the clerical, professional, scientific and technical types impaired workers had no accidents, while the able bodied had a frequency rate of 2.27 and a severity rate of 0.01. Tables 10 and 11 present the figures on total plant population and certain sections of plants surveyed. It is to be noted that the average frequency rate (13.56) for sectional employees is lower than the average frequency rate of the physically impaired (16.15) but is higher than the average frequency rate for the able bodied (12.26). This would indicate, in view of the lower percentage of handicapped population (approximately 3 per cent) in comparison with the able bodied population in all plants, that the able bodied workers sampled possessed on an average approximately the same accident proneness as all sectional workers.

With regard to severity rates, we find that the average rate for sectional employees (0.68) is higher than the average rate of both the able bodied (0.20) and the physically impaired (0.21) in the sample study. This indicates on a sectional basis that the physically impaired, while showing a higher frequency rate than the sectional workers, had accidents which were less severe.

It is believed that the comparative statistics on the sampled group and those for total population of plants surveyed have some significance from the standpoint of employment policy and accident prevention. From the standpoint of accident prevention it is important to consider sectional experience of workers and the experience of the sample to determine how such experience compares with the average for the plant and for the industry. It was possible to obtain lost time accident experience in selected establishments from which samples were drawn in five industries: aircraft, ordnance, shipbuilding and ship repair, other manufacturing, and camps, forts and naval training stations.

Aircraft installations had a frequency rate of 5.34 and a severity rate of 0.323. This indicates a lower frequency rate by industry than by certain sections in that industry (8.35) but a higher severity rate (0.323) than in the sections (0.25). Both the section and industry experience showed lower frequency rates than those found among the sampled workers in the industry. However, the severity rates both for sections and for the industry were higher than those for the sample.

In ordnance activities, industry rates (14.28F and 0.569S) were higher than sectional rates and rates of the samples, both in frequency and in severity.

In shipbuilding and ship repair the industry rates (14.99F and 0.451S) were lower than the sectional rates and the sampled rates from the standpoint of

27. The number of lost time accidents per million man-hours' exposure.
28. The average time loss measured in days per thousand hours worked.

frequency, and higher than those of the sample from the standpoint of severity.

In industries involving "other manufacturing" a frequency rate was obtained for the total industry which was higher than the sectional rate and lower than the sample of physically impaired workers. No severity rate was obtained by industry for this activity.

TABLE 10.—*Lost Time Accident Experience (Sectional*)*

Type of Industry	Frequency Rate	Severity Rate
Total	13.56	0.68
Aircraft and installations	8.35	0.25
Ordnance activities	5.95	0.28†
Shipbuilding and ship repair	30.38	1.23†
Other manufacturing	1.54	0.02
Procurement, inspection, storage, supply	35.14	0.24

* Sample of 56.9 per cent of sections surveyed.
† Include fatal accident charges in man-days lost.

The total industry frequency rate for camps, forts and naval training stations was higher than the sample of both able bodied and impaired workers in that industry.

It is evident that sectional experience in some industries studied appears more favorable than for the industry as a whole, and in some the sectional experience was less favorable than for the industry as a whole. In either case the increased frequency rates of certain physically impaired workers as compared with able bodied workers of the samples indicate the possibility that there is a theoretical threshold of absorption of impaired workers with certain physical defects under present employment practices, which, when exceeded, may increase accident liability for the industry as a whole and increase production costs. There is evidence that some industries coming under this study may have exceeded this threshold because of employment in some sections of large numbers of accident prone able bodied and accident prone impaired workers.

Table 12 presents findings on lost time accident frequency rates and severity rates by types of physical impairments. Workers with hearing defects were found to have the highest frequency rate (36.36) and the highest severity rate (0.47) of all impaired workers. The lowest class frequency rate was among those with arrested tuberculosis (11.60). The frequency rate (17.23) among the sample miscellaneous group of defects (diabetes, epilepsy, pulmonary disease other than tuberculosis, and dwarfism) represents a rate among a very small number of employees (table 7). The rate among the visual defect group (15.96) represents the accident experience mainly of persons blind in one eye. The visual defect group was a large one, containing 507 employees blind in one eye and 58 who were either totally blind or industrially blind. Of the 58 totally or industrially blind, 2 employees experienced one accident each.

TABLE 11.—*Lost Time Accident Experience in Selected Establishments from Which Sample Was Drawn, by Industry*

Type of Industry	Frequency Rate	Severity Rate
Aircraft installations	5.34	0.323
Ordnance activities	14.28	0.569
Shipbuilding and ship repair	14.99	0.451
Other manufacturing	8.17	*
Procurement, inspection, storage, supply	*	*
Administrative officer	*	*
Camps, forts, naval training stations	22.60	*

* Information not available.

Although safety reports on impaired workers attributed a small percentage of these accidents (6.7 in the males and 16.7 in the females) to preexisting disabilities, it is felt that variation in rates for various types of defects is significant from the standpoint of accident proneness. Since these impaired workers were in most cases interviewed, physically examined and then placed in environments which apparently presented no unusual hazards from the standpoint of their physical defects, and since they were given duties on the basis of their physical capacities as related to physical demands of the job, there is evidence that a psychologic element relating to certain physical impairments played a role in causing significant variations of frequency rates among the several classes of physical defects found in impaired workers studied. It is not believed that the larger number of accidents were distributed among particular classes of physical defects purely by chance. In this connection it is of interest to note that the frequency rate for persons with heart disease (13.07) closely approximates the rate (14.28) found by Poole and Bent.[8] Accidents in numbers among the groups with hearing defects (7.5 per hundred), with deformities of shoulder and hip (6 per hundred), with amputation of fingers (4.2 per hundred) and with visual defects (3.2 per hundred) accounted for an excessive number of all accidents among the impaired workers. The average number of injuries among the able bodied and the remainder of impaired workers sampled was approximately 2 per hundred workers. The average frequency rate (16.16) for the impaired workers in this study, therefore, is not of itself a good measure of the average liability of impaired workers as a group. It is believed that the average has been too much affected by the experience of workers in particular physical defect classes whose rates were in excess. These classes increased the overall average rate. According to Farmer [11] it is the few who sustain a large number of accidents who increase the average accident rate of any group, and they are in no way typical of the group as a whole. It can be concluded, however, that accident proneness apparently is much greater among impaired workers with certain types of physical defects than among most able bodied workers.

TABLE 12.—*Lost Time Accident Frequency and Severity Rate by Type of Physical Impairment*

Type of Disability	Frequency Rate	Severity Rate
Total	16.15	0.21
Amputation of:		
Arm or arms	14.82	0.05
Hand or hands	.....	....
Fingers	21.10	0.51
Foot or feet	.....	....
Leg or legs	13.00	0.17
Disability or deformity of:		
Shoulder or hip	30.01	0.22
Spine or back	10.20	0.15
Upper extremities	16.34	0.20
Lower extremities	11.08	0.23
Visual defects	15.86	0.15
Hearing	36.36	0.47
Cardiac	13.07	0.21
Tuberculosis	11.60	0.08
Other	17.23	0.02

SECOND INJURIES

A very important aspect of accident experience of impaired workers relating to protective hiring practices involves the question of second injuries. These injuries constitute an aggravation of earlier disabilities for which compensation may or may not have been paid. They frequently transform partial disability into total disability, as in the case of loss of one hand, foot or eye followed by an injury which destroys the other member.[29]

When an employee has sustained an injury involving the loss of a member of the body and afterward loses another in a second injury in the same or another occupation, he may become permanently and totally disabled, thus increasing the amount to be paid in the form of workmen's compensation. In private industry the essence of the problem of hiring the impaired worker lies in whether the employer or his insurance carrier may possibly have to bear the burden of cost of second injuries.[30] Comparatively recent measures have been adopted in some states to protect employers and their insurance carriers from second injuries among employees. This protection usually is in the form of second injury funds out of which is paid the difference between compensation received by the worker for the second injury and compensation payable for the disability resulting from the combined effects of the first and second injuries.[31] Some states, however, have persisted in the past in attempting to protect employers by permitting workers with physical defects to waive their rights to compensation for injuries resulting from an aggravation of an existing disability. This procedure has been criticized on the ground that it defeats the social purposes of compensation legislation.

Compensation for initial and second injuries of federal civil service employees is governed by the Compensation Act of 1916, as amended. Under this act the United States, as the employer and the insurer, assumes fully the consequences of injury to an employee whatever the injury may be, including liability for permanent total disability when caused by an injury which, in combination with previous disability, results in permanent total disability. There are no separate funds under the Federal Compensation Act for civil service employees comparable to those for employees in private employment. It can be seen that no purpose would be served by maintaining two funds, since there would be no relief to the immediate employer, namely the United States, because the United States would supply both funds. The spread liability feature in private employment insurance, therefore, does not apply.

In discussing the question of second injuries it is well to consider their significance from the standpoint of expectancy. The significance of second injuries, when considered in terms of the actual number occurring, has been questioned in the belief that they are negligible as compared with the number of persons being injured for the first time.

An analysis of the experience of the New York Special Disability Fund by the Finance Bureau of the New York State Department of Labor, and also by the Division of Statistics and Information, disclosed that the number of cases charged against the fund on Dec. 16, 1943 was 99. Charges are made against this fund only when the second injury results in permanent total disability; the liability of the fund is for the additional compensation above that allowed for the second injury considered by itself as a permanent partial disability. Payments in the permanent total cases continue through the lifetime of the worker. The fund began operating in 1919, and the number of cases terminated in 1943 was 5 and the number acquired was 5. For the years 1931 through 1942 there were 971,776 cases with class awards and during the same period the special disability fund acquired 87 cases, indicating 1 second injury fund case to 11,170 compensated injuries.[32]

In 1941 Kessler stated that in Connecticut the workmen's compensation law contained a waiver clause by virtue of which the employee is permitted to waive any rights to compensation for additional injury on account of physical disability. Ohio, Wisconsin and Massachusetts also permit certain physically impaired workmen to waive compensation. These waivers were signed at a rate of from 1,000 to 1,500 a month; yet, despite this large number of workers with physical defects, the incidence of accidental injuries among the waiver group was no higher than that of the normal working population.[33] There is evidence, therefore, in private industry that the expectancy of second injuries as compared with first injuries is very low and therefore the problem of second injuries may have received undue emphasis.

An additional problem relating to second injuries has arisen on the assumption that insurance carriers for private industry are interested in the physical defects of persons hired in any particular plant. The basis for this conception has not been substantiated, since in general insurance carriers leave the function of hiring and firing entirely in the hands of the employer, and rating plans and rules are not devised according to physical characteristics of workers, such plans and rules being affected only by bad accident experience in the plant, leading eventually to a higher insurance rate.[31] The federal government as the insurance carrier takes a similar attitude and is mainly interested in accident experience of government agencies from the standpoint of promoting safety.

It can be seen that the question of second injuries to federal workers cannot be viewed in the same light as second injuries among workers in private industry from the standpoint of employer insurance liability. The federal government, however, outside of all consideration of financial liability, must protect impaired workers from further injury and promote safety.

An important objective in the commission's study was to determine where and how impaired workers could safely be employed. The problem, therefore, is not one of second injuries from the standpoint of financial liability but one of obtaining the facts on accident proneness which would aid in preventing impaired workers from getting hurt. Actually, among the 2,858 cases of impaired workers studied there was only 1 worker who received an injury of the type that would place him in the second injury class if he was in private industry, according to the accepted concept of such

29. Magnusson, Leifur: Workmen's Compensation for Public Employees: An Analysis of State and Federal Legislation, Publication 88, Public Administrative Service, 1944.

30. Monthly Labor Review, vol. 57, pp. 746-747, United States Department of Labor, Bureau of Labor Statistics, October 1943.

31. Panel Discussion on Workmen's Compensation as It Affects the Employment of the Physically Handicapped, National Conference of Social Work, New York, March 10, 1943.

32. Second Injury Funds as Employment Aids to the Handicapped, U. S. Department of Labor, Division of Labor Standards, 1944.

33. Kessler, H. H.: The Employability of the Handicapped, in Proceedings of the National Conference on Employment of the Disabled, Washington, D. C., Nov. 21-23, 1941.

injuries by most of the state compensation laws. This worker, who had previously sustained a disability of the leg, incurred an aggravation of that disability because of a fracture which occurred while he was performing duties he had been forbidden to perform because of his preexisting disability.

TABLE 13.—*Percentage Distribution of Physically Impaired and Able Bodied Workers by Sex and Productivity (Quantity)*

Quantity of Work Performed	Physically Impaired			Able Bodied		
	Total	Male	Female	Total	Male	Female
Total: Number	2,858	2,380	478	5,375	4,427	948
Per cent	100.0	100.0	100.0	100.0	100.0	100.0
Much more than other workers	5.9	5.2	9.3	6.9	6.7	7.9
Somewhat more than other workers	21.5	21.4	21.9	24.6	24.6	24.3
About the same as other workers	56.3	56.4	55.6	58.3	58.0	60.0
Somewhat less than other workers	13.9	14.5	11.1	8.4	8.6	7.4
Much less than other workers	2.4	2.5	2.1	1.8	2.1	0.4

PRODUCTION AND EFFICIENCY

Although overshadowed by questions of accident proneness and liability for second injury, the comparative productivity and efficiency of the impaired and the able bodied have in the past been an issue in employment practices.

Previous studies of job performance in private industry, some of which have already been cited, demonstrated the impaired to be as good as, or better than, the able bodied from the standpoint of production and efficiency. In some of these studies it was no doubt possible to obtain objective findings on production and efficiency based on output per man-hour statistics; in many, however, the findings appear to be on a general opinion basis.

Since output per man-hour statistics on individual workers were generally not available, it was necessary in the commission's study to obtain measurements of productivity both in quality and in quantity, based on opinions of supervisors and foremen. These were not general opinions, however, relating to groups of workers but were opinions on individual workers known to the

TABLE 14.—*Percentage Distribution of Physically Impaired and Able Bodied Workers by Sex and Productivity (Quality)*

Quality of Work Performed	Physically Impaired			Able Bodied		
	Total	Male	Female	Total	Male	Female
Total: Number	2,858	2,380	478	5,375	4,427	948
Per cent	100.0	100.0	100.0	100.0	100.0	100.0
Much better job than other workers	6.6	6.1	8.9	8.3	8.0	9.2
Somewhat better job than other workers	23.7	23.6	24.5	23.8	23.6	25.0
About the same quality job as other workers	63.2	63.5	61.8	63.4	63.7	62.3
Somewhat worse job than other workers	5.9	6.2	4.4	4.0	4.1	3.4
Much worse job than other workers	0.6	0.6	0.4	0.5	0.6	0.1

foremen or supervisors. Supervisors and foremen were given no specific information to the effect that the purpose of the study was to evaluate the job performance of physically impaired workers. Further, for the purpose of control, efficiency ratings were obtained which are based on elements which include those relating to quantity and quality productivity.

In government industry, as in private industry, the most important element to be considered in studying production and efficiency is that of the "doing" function. This function may be looked on as having three components: "how much," "how well" and "general manner of doing."

The "how much" is related to the kinds of work and the evidences of productiveness therein. The quality of work—that is, the "how well"—is also related to the kinds of work and the evidences of quality in them. In the case of the workers coming under this study, quality of work, however, changes according to the level of positions occupied. In industrial positions, generally, accuracy is to be considered with respect to the operation when the activity is procedural or operational in character.

"The manner of doing work" is evidenced by the performance of the task in an orderly fashion, the ability to organize work and demonstration of willingness to assist others wherever needed. The "manner" component also involves cooperativeness, initiative, reliability and trustworthiness.

In most of the positions coming under the study, the element of "doing" is related particularly to maintenance of equipment, tools and instruments and keeping such tools, instruments and equipment in working order. There is a relationship also to activities such as cleaning, making minor mechanical adjustments and knowing

TABLE 15.—*Percentage Distribution of Physically Impaired and Able Bodied Workers by Sex and Efficiency Ratings*

Efficiency Rating	Physically Impaired			Able Bodied		
	Total	Male	Female	Total	Male	Female
Total: Number	2,858	2,380	478	5,375	4,427	948
Per cent	100.0	100.0	100.0	100.0	100.0	100.0
Excellent	8.6	6.7	16.4	10.2	9.0	15.2
Very good	34.3	34.6	33.1	35.2	35.1	35.7
Good	43.6	44.7	39.1	43.5	44.2	40.8
Fair	10.8	11.5	8.1	9.3	9.8	7.1
Unsatisfactory	2.7	2.5	3.3	1.8	1.9	1.2

when repairs are necessary. Mechanical skill is directly related to the "doing" function, and such skill is demonstrated in making, or in repairing, an article with which the craft is concerned and in which the employee applies a required amount of theory and knowledge in the performance of the tasks in the trade or craft.

Different degrees of mechanical skill are, of course, required in particular trades; for example, in the plumbing trade the mechanical skill required of a plumber's helper, a plumber and a master plumber is progressively greater. All of these elements were taken into consideration with regard to the matching process and in evaluating productivity and efficiency in general.

In connection with adjective efficiency ratings, the rating "excellent" means that performance in every important phase of the work was outstanding and there was no weakness in performance in any respect; the rating "very good" means that performance in at least half of the important phases of the work was outstanding and there was no weakness in performance in any respect; a rating of "good" means that performance met requirements from an overall point of view; a rating of "fair" means that performance did not quite measure up to requirements from an overall point of view, and a rating of "unsatisfactory" means that performance in a majority of important phases of the work did not meet job requirements.

Table 13 furnishes a percentage distribution of physically impaired and able bodied workers by quantity

productivity. The heaviest distribution of workers in both groups was in the class that produced the same as all other sectional workers. Of the able bodied in the sample 31.5 per cent produced more than other sectional workers, and in the case of the impaired 27.4 per cent produced more than other sectional workers. This indicates that the productivity in terms of quantity was slightly higher for the able bodied than for the impaired workers. A more significant difference in quantity productivity, however, is found on the analysis of percentage distribution of both groups of workers in the class producing less than other workers. These figures demonstrate that 16.3 per cent of the impaired workers in the sample produced less than other sectional workers, while only 10.2 per cent of the able bodied produced less.

From the standpoint of quality productivity (table 14), the differences in quality of work performed by the two groups is not very great. With regard to the impaired workers, 30.3 per cent did a better job than other sectional workers, while 32.1 per cent of the able bodied did a better job. As in the analysis of quantity productivity, the percentage distribution of workers in both groups on quality was heaviest in the class consisting of those who produced as well as other sectional workers. With regard to workers producing inferior quality of work, the percentage difference between both groups is not as significant as similar figures on quantity percentages just mentioned.

The control figures on efficiency ratings (table 15) show a fairly close proportion in the distribution among the two groups of workers in comparison with distributions relating to quantity and quality productivity.

A further analysis was made of the productivity of impaired workers according to occupation (tables 16 and 17). In all occupations, the largest percentage of impaired workers were found to be in the class performing the same as other sectional workers, from the standpoint both of quality (63.2 per cent) and of quantity (56.3 per cent). The best performance with regard to quality and quantity was found among those impaired workers who were craftsmen. Those impaired workers who were employed as laborers accounted for the largest percentage of the class in which the quality of work was worse and the quantity less than that of other sectional workers.

A further analysis of the efficiency ratings of physically impaired workers by occupation (table 18) disclosed that the heaviest percentage of workers in all occupations were given ratings of "good." The highest percentage of workers receiving ratings of "very good" and "excellent" were among those in clerical occupations. The largest percentage of workers receiving "fair" and "unsatisfactory" ratings were craftsmen. Correlating efficiency ratings of craftsmen and the findings with regard to productivity among impaired workers in this occupational group, one notes that there is a discrepancy between the craftsmen's productivity

TABLE 16.—*Percentage Distribution of Physically Impaired Workers by Occupation and Productivity (Quality)*

Quality of Work Performed	Occupation						
	Total	Craftsmen	Operatives	Laborers	Service	Clerical	Others *
Total: Number	2,858						
Per cent	100.0	28.2	18.7	26.1	3.6	21.3	2.1
Much better job than other workers	6.6	1.8	1.0	1.2	0.3	2.0	0.3
Somewhat better job than other workers	23.7	7.5	3.8	5.0	0.6	6.2	0.6
About the same job as other workers	63.2	17.2	13.0	17.7	2.3	12.0	1.0
Somewhat worse job than other workers	5.9	1.6	0.8	2.0	0.3	1.0	0.2
Much worse job than other workers	0.6	0.1	0.1	0.2	0.1	0.1	...

* Includes administrative, professional, semiprofessional, technical and scientific workers.

TABLE 17.—*Percentage Distribution of Physically Impaired Workers by Type of Occupation and Productivity (Quantity)*

Quantity of Work Performed	Occupation						
	Total	Craftsmen	Operatives	Laborers	Service	Clerical	Others *
Total: Number	2,858						
Per cent	100.0	28.2	18.7	26.1	3.6	21.3	2.1
Much more than other workers	5.9	1.7	0.8	1.2	0.1	1.9	0.2
Somewhat more than other workers	21.5	6.3	4.1	4.5	0.7	5.3	0.6
About the same as other workers	56.3	16.1	11.3	14.6	2.0	11.3	1.0
Somewhat less than other workers	13.9	3.7	2.1	4.8	0.6	2.4	0.3
Much less than other workers	2.4	0.4	0.4	1.0	0.2	0.4	†

* Includes administrative, professional, semiprofessional, technical and scientific workers. † Less than 0.05 per cent.

TABLE 18.—*Percentage Distribution of Physically Impaired Workers by Occupation and Efficiency Rating*

Efficiency Rating	Occupation						
	Total	Craftsmen	Operatives	Laborers	Service	Clerical	Others *
Total: Number	2,858						
Per cent	100.0	28.2	18.7	26.1	3.6	21.3	2.1
Excellent	8.6	1.0	1.5	1.5	0.5	3.5	0.6
Very good	34.3	10.3	5.0	7.5	1.0	9.5	1.0
Good	43.6	11.9	8.9	12.8	1.9	7.6	0.5
Fair	10.8	3.6	2.7	3.8	0.1	0.6	...
Unsatisfactory	2.7	1.4	0.6	0.5	0.1	0.1	...

* Includes administrative, professional, semiprofessional, technical and scientific workers.

and their efficiency ratings. A possible explanation of this discrepancy may lie in the fact that the physically impaired craftsmen, although outstanding in productivity, were weak in other elements taken into consideration in the assigning of efficiency ratings.

An analysis was made of opinions of foremen and supervisors (tables 19 and 20) with regard to the relationship of physical defects among workers to occupation. It was found that the highest percentage of workers who perform better because of their physical defects were craftsmen and that the highest percentage of workers who did not work as well because of their physical defects were laborers. For 75.8 per cent of all impaired workers the physical defects, according to the supervisor or foreman, made no difference in job performance.

Statistics obtained on the percentage distribution of physically impaired workers by type of disability and relation of the disability to performance were not significant from the standpoint of class of physical defect and are not reported.

In summary, from the standpoint of productivity and efficiency, the average job performance of the physically impaired compared favorably with matching able bodied workers and all sectional workers. This study, however, in no way shows that the impaired workers are superior in average job performance (productivity and efficiency) to able bodied workers sampled or to all sectional workers. There is lack of agreement between (*a*) foreman and supervisor opinions on relationship of physical defect to job performance and (*b*) actual findings in job performance among the impaired.

There is a suggestion that the group of impaired workers producing less in quality and quantity may also have been responsible for increased accident proneness in the impaired group. No absolute correlation on this point, however, has been made.

TABLE 19.—*Percentage Distribution of Physically Impaired Workers by Occupation and Relation of Disability to Performance*

Performance	Occupation						
	Total	Craftsmen	Operatives	Laborers	Service	Clerical	Others *
Total: Number	2,858						
Per cent	100.0	28.2	18.7	26.1	3.6	21.3	2.1
Works better because of it	3.8	1.1	0.8	0.9	0.1	0.8	0.1
Makes no difference	75.8	22.5	14.3	17.7	2.3	17.2	1.8
Does not work as well because of it	20.4	4.6	3.6	7.5	1.2	3.3	0.2

* Includes administrative, professional, semiprofessional, technical and scientific workers.

TABLE 20.—*Percentage Distribution of Physically Impaired Workers by Type of Disability and Relation of Disability to Performance*

Performance	Total	Type of Disability													
		Amputation					Disability or Deformity								
		Arm or Arms	Hand or Hands	Fingers	Foot or Feet	Leg or Legs	Hip or Shoulder	Spine or Back	Extremities: Upper	Extremities: Lower	Visual	Hearing	Cardiac	Tuberculosis	Other
Total: Number	2,858														
Per cent	100.0	4.9	1.5	4.9	0.9	7.0	3.4	5.3	8.8	20.5	19.8	8.4	8.2	5.3	1.1
Works better because of it	3.8	0.4	*	0.1	...	0.3	*	0.1	0.2	0.6	0.7	1.1	0.1	0.2	...
No difference because of it	75.8	3.2	1.0	4.3	0.7	4.6	2.9	3.8	6.6	15.7	15.7	6.1	6.5	4.1	0.6
Doesn't work as well because of it	20.4	1.3	0.5	0.5	0.2	2.1	0.5	1.4	2.0	4.2	3.4	1.2	1.6	1.0	0.5

* Less than 0.05 per cent.

TABLE 21.—*Days Lost Annually per Worker for Sickness by Type of Occupation and Sex*

Occupation	Physically Impaired		Able Bodied	
	Male	Female	Male	Female
Total	7.7	9.6	7.0	8.7
Administrative, professional, and related occupations *	10.2	13.3	8.1	10.1
Clerical	6.4	9.8	5.9	9.7
Service	6.8	11.9	6.2	6.4
Craftsmen	9.2	9.7	7.9	8.7
Operatives	7.1	10.0	6.8	7.8
Laborers	6.9	7.4	6.4	6.6

* Includes semiprofessional, technical and scientific workers.

SICK ABSENTEEISM

Statistical data on absenteeism in wartime often have a tendency to be misleading and unreliable. According to Lanza [34] it is difficult and more or less meaningless to compare wartime absenteeism figures with the accurate and carefully estimated figures of peace years.

During the abnormal years prevailing, especially during the first two years of the war, illness often has been an excuse of convenience and it is difficult to obtain objective statements from employees that will throw light on reasons for voluntary absences or simply on the question of whether or not the absence was voluntary.

Statistics previously compiled have not demonstrated that physical condition is an important factor but rather that the socioeconomic problems of workers are the cardinal underlying causes of absenteeism, especially of the short term type.[35] These absences have been demonstrated to run highest in weeks including certain holidays and social events and to be based mainly on general fatigue and personal factors, such as seeking new place of residence and purchasing food and clothing. These short term absences in many instances are reported under sick leave and, as a general rule, the real cause for absences cannot be obtained objectively on questioning the employee himself.

The question of general absenteeism in wartime, therefore, may be primarily one of reliability and deportment, and, depending on job independence of population in any given establishment, may be considered a normal factor to a certain degree in industrial

34. Lanza, A. J.: Testimony, Hearing Before a Subcommittee on Civil Service, House of Representatives, Aug. 21 and 22, 1944.

35. An Analysis of the Paid Sick Leave Plan for Hourly Rated Factory Workers, Labor Economics Section, Personnel Staff, General Motors Corporation.

operation. Job independence very often is the governing factor, and it is only in periods when manpower is at a premium and maximum production is a national necessity that absenteeism becomes a matter of grave concern.

The statistics (tables 21, 22 and 23) on sick absenteeism are on an annual cumulative basis, and 80 per cent of the cases on which the figures are based represent short term absences of from one to three days. The average yearly rate for the impaired males (7.7) was higher than for the able bodied males (7.0), and the average rate for impaired females (9.6) was higher than for able bodied females (8.7). The overall sick absenteeism average for male and female employees in the entire federal service is 7 days per worker annually. These findings may not be significant, per se, but they furnish a means of establishing a correlation with the findings on accident experience; such correlation would tend to support Farmer's [11] suggestion that those who most often report minor sickness may be less resistant to fatigue and more likely to incur accidents.

The highest rates of sick absenteeism among all workers were found in the administrative, professional, technical and scientific workers. From the standpoint of fatigue, these figures tend to demonstrate that speed of production among craftsmen and other workers performing manual tasks, and speed of production among workers performing administrative, professional and related tasks may be significant in relationship, in that fatigue from predominantly mental stress may be a larger factor in short term absenteeism than fatigue from predominantly manual or physical stress.

The highest average number of days lost per worker in the impaired group because of sickness was among those workers with arrested tuberculosis (14.4). Workers with arrested tuberculosis show a high sick absenteeism experience (20.1) in administrative, professional, technical and scientific occupations and in manual occupations (16.2 for craftsmen, 13.5 for operatives and 16.5 for laborers). From the standpoint of fatigue there is no correlation between the findings on sick absenteeism among the arrested tuberculosis cases as a group and the findings on accident proneness in this group, since, although they had the highest sick absenteeism rate, they had as a class the lowest accident frequency rate of all classes of defects studied. It is possible that a large number in this group took sick leave as a precautionary measure, having been conditioned to the idea of avoiding fatigue during the course of treatment for the disease.

Impaired workers in administrative offices and in camps, forts and naval training stations experienced a higher average sick absenteeism rate (11.1) than impaired workers in other industries. The lowest rate

TABLE 22.—*Days Lost Annually per Worker for Sickness by Type of Disability and Occupation*

Type of Worker	Total	Occupation					
		Craftsmen	Operatives	Laborers	Service	Clerical	All Others *
Able bodied workers	7.2	7.9	7.0	6.4	6.2	7.7	8.5
Physically impaired workers	8.0	9.2	7.5	7.0	7.7	7.8	10.6
Amputation of:							
Arm or arms	7.4	9.9	9.6	6.4	5.5	7.5	7.3
Hand or hands	6.2	8.1	4.0	5.9	2.3	5.6	32.0
Fingers	6.4	7.7	7.5	4.4	1.0	8.2	2.5
Foot or feet	7.5	7.5	12.7	4.2	...	9.2	...
Leg or legs	8.8	10.0	7.3	6.8	16.2	9.7	6.4
Disability or deformity of:							
Shoulder or hip joint	8.4	9.3	9.7	3.5	11.3	9.0	...
Spine or back	7.3	7.6	4.8	6.9	8.8	9.5	13.0
Upper extremities	7.2	8.1	5.4	6.3	11.2	7.8	4.0
Lower extremities	7.6	6.7	7.7	8.1	6.3	8.1	9.3
Visual defects	6.9	8.6	6.6	6.3	6.9	5.7	5.0
Hearing	9.4	10.5	10.7	6.3	4.8	8.8	16.3
Cardiac	8.3	10.2	5.3	9.3	9.8	6.7	4.6
Tuberculosis	14.4	16.2	13.5	16.5	7.0	9.9	20.1
Dwarf	5.1	1.5	10.0	2.3	...	8.0	...
Diabetes	8.5	8.5	...	...	...	...	...
Epilepsy	14.0	40.0	...	...	...	2.0	...
Pulmonary other than tuberculosis	7.6	8.6	7.6	...	...	...	...

* Includes administrative, professional, semiprofessional, technical and scientific workers.

TABLE 23.—*Days Lost Annually per Worker for Sickness by Type of Disability and Industry*

Type of Worker	Air Craft Industries	Ordnance Activities	Ship Building and Repair	Other Manufacturing	Procurement, Inspection, Supply and Storage	All Others
Able bodied workers	7.4	5.7	8.5	6.6	7.2	9.6
Physically impaired workers	8.5	6.5	8.4	6.8	6.8	11.1
Amputation of:						
Arm or arms	8.8	7.4	4.6	8.0	8.0	7.7
Hand or hands	10.0	4.2	1.8	...	4.5	7.0
Fingers	6.3	6.9	7.8	5.2	4.0	3.5
Foot or feet	8.2	1.4	10.3	...	...	8.0
Leg or legs	9.8	5.5	8.2	18.0	16.0	10.8
Disability or deformity of:						
Shoulder or hip joint	9.5	7.9	6.2	1.0	18.0	10.3
Spine or back	6.2	5.3	8.0	9.8	...	22.0
Upper extremities	8.4	5.9	6.9	13.0	0.8	8.9
Lower extremities	7.8	6.4	8.0	4.7	14.1	10.9
Visual defects	7.6	6.6	4.8	5.3	5.0	8.1
Hearing	8.4	8.7	9.4	2.6	18.0	13.8
Cardiac	8.4	6.0	10.2	...	2.8	11.9
Tuberculosis	15.5	8.1	14.1	...	1.5	18.8
Dwarf	1.5	4.6	10.0	...	...	...
Diabetes	8.5	...	...	...	...	...
Epilepsy	21.0	...	...	...	...	...
Pulmonary disease other than tuberculosis	10.8	5.5	9.0	...	...	...

was for impaired workers in ordnance activities. In shipbuilding and repair there was only a difference of one tenth of a day in the average of the impaired and that of the able bodied. This is of interest in view of the fact that the accident frequency rates of the able bodied and the physically impaired in shipbuilding and ship repair are approximately the same.

TURNOVER

Turnover, like absenteeism, is to a certain extent a normal factor in industrial operation and is governed by job independence and many other conditions not having a direct relationship to physical condition. Past experience of rehabilitation agencies and statistics compiled by these agencies indicate that the impaired are determined to make good on the job and to stay on the job, and that they apparently are the last group to be affected by job independence.[4]

In the commission's study an attempt was made to determine the comparative turnover rates of the physically impaired and the able bodied in all the industrial establishments surveyed. Lack of complete information with regard to the physically impaired population in most establishments made it impossible to do this. Pressure of war work precluded the taking of a census. It was possible, however, to obtain well controlled statistics on an annual basis in three large establishments which employed a total of 16,463 workers. The following factors were considered in studying turnover in these three establishments:

A. Quits or terminations initiated by employees (for example, dissatisfaction with hours, wages, working conditions, labor policies, local housing transportation, obtaining another job, marriage, maternity or ill health).

B. Separation for the purpose of entering the armed forces.

C. Quits resulting from unauthorized absences.

D. Discharges. In this group were considered removals for such reasons as incompetence, physical inability to perform the work, violation of rules, dishonesty, insubordination or laziness.

E. Miscellaneous separations. This included termination of employment due to transfer, permanent disability, death or retirement.

The percentage of turnover for all employees, excluding military separations, was obtained by subtracting the number of separations due to the draft from the total number of separations and dividing this figure by the average number of employees working on a yearly basis. The percentage of turnover among the impaired was secured by dividing the number of separations of the impaired by the yearly average working force of impaired employees.

Among the impaired workers in these establishments the turnover was found to be negligible (5.4) in comparison with the turnover rate of the able bodied (52.9). It is felt that the size of the sample of employees mentioned is sufficient to indicate the employment stability of physically impaired workers. The low rate for the impaired has significance beyond the fact that it indicates that they remain on the job; it also indicates that no large number of impaired workers during the twelve months period were separated and makes almost negligible the possibility of percentage error due to lack of information on impaired workers separated during the calendar year, regardless of whether these separations were due to unsatisfactory placement, skill failure, physical demands failure or other causes.

SPECIAL CONSIDERATIONS GIVEN TO PHYSICALLY IMPAIRED WORKERS

Of the 2,858 impaired workers studied, 19.7 per cent required changes in the job or job tailoring in placement. This figure for percentage of job changes is too low to be consistent with effecting optimum job performance of the group. It no doubt expresses the pressure of war work and the necessity of getting persons on the job with minimum delay in order to meet work deadlines. The highest number of job changes were necessary for service workers; the lowest number were made for administrative, professional, clerical, technical and scientific workers.

With regard to special considerations shown impaired workers, it was found that 9.7 per cent were given such considerations, including permission to enter and leave by transportation at entrance of the establishment, change in lunch and rest periods, permission to report or leave at hours other than regular, permission not to report time on clock or by card, permission to receive pay by check or mail, and use of special equipment. The greatest consideration shown to impaired workers was with regard to permission to report or leave the establishment at hours other than regular and for special lunch and rest periods.

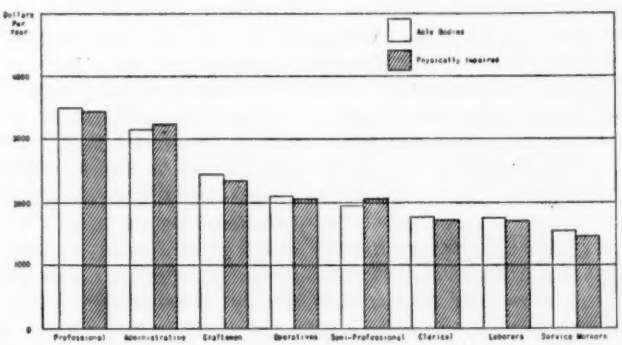

Chart 3.—Median annual base rate of earnings for able bodied (white columns) and physically impaired (shaded columns) workers by occupation.

It is significant that 90.3 per cent of all impaired workers received no special considerations at all with regard to transportation, lunch and rest periods, hours of work, methods of remuneration, special equipment or reporting time on clock or by card.

EARNINGS

Chart 3 demonstrates the median annual base rate of earnings of physically impaired and able bodied workers by occupation at the time of the survey. The median salary figures for each type of occupation demonstrate a striking similarity in earnings of the sample for both groups. The largest percentage of workers in both groups earn between $1,800 and $2,000 a year. The median annual earnings for all able bodied was $1,938 a year as compared with $1,900 a year for the physically impaired. At the beginning of employment the highest percentage of workers in both groups had annual earnings of $1,440. Correlation of this figure with that on earnings at the time of the survey shows that both the physically impaired and the able bodied were able to increase their earning power substantially through promotion and by assignment to duties involving greater responsibility or skill or through administrative promotion.

CONCLUSIONS

1. A study has been made of the job performance of 2,858 physically impaired male and female workers as compared with that of 5,523 able bodied male and female workers of similar age, experience and occupational characteristics from the standpoints of accident experience, production and efficiency, sick absenteeism and employment stability.

2. The average accident frequency rate for the physically impaired was found to be higher than the average frequency rate for the able bodied. An excessive number of accidents in certain physical defect classes contributed heavily to the accident frequency rate of the impaired group. The physically impaired experienced proportionately less severe accidents than the able bodied. There is evidence that a psychologic element relating to some types of physical impairments plays an important role in causing significant variations of frequency rates among the several classes of physical defects found among impaired workers in this study. This psychologic element also exists among the able bodied but has greater significance among workers with certain types of physical defects from the standpoint of prevention of further impairment by second injuries and determining a safe threshold of absorption of physically impaired workers into certain types of industries without raising overall accident and severity rates or production costs of those industries. The psychologic element in accident proneness cannot be measured or altered either by ordinary interview or by matching physical capacities or other qualifications to physical and other demands of jobs. It can to some extent be detected before employment both in the able bodied and in the physically impaired by means of tests which partially measure certain psychologic functions involved in industrial proficiency and accident proneness.

3. The productivity, both in quantity and in quality, and the efficiency ratings of the physically impaired were found to compare favorably with those of the able bodied.

4. Findings on increased short term sick absenteeism among the physically impaired show some correlation with the accident experience of this group and suggest that those workers who most often report minor sickness may be less resistant to fatigue and more likely to incur accidents.

5. A much lower rate of turnover was found among the physically impaired than among the able bodied, indicating that the impaired are superior from the standpoint of employment stability and that no large number of impaired workers during a twelve month period were separated because of skill failure, physical demands failure or other causes.

6. The percentage of job changes, or tailoring, in the employment of impaired workers was relatively too low to be consistent with effecting optimum job performance of the impaired. This low percentage of job changes may be an expression of the pressure of war work and the urgency for getting persons on the job with a minimum of delay in order to meet production deadlines.

7. The percentage of the physically impaired receiving special considerations with regard to transportation, lunch and rest periods, hours of work and methods of remuneration, special equipment or in time reporting has been found to be low.

8. The impaired as well as the able bodied show a substantial increase in earnings at the time of survey over earnings at time of initial employment in their jobs.

The commission will continue to support the policy of selective and judicious placement of the physically impaired, including disabled veterans, with further emphasis on selective placement from the standpoint of special interviewing and testing of impaired workers, especially with regard to applicants for employment in government industry. The special tests may well be considered in connection with able bodied workers from the standpoint of overall safety promotion. Further emphasis will be placed on close working relationships with rehabilitation agencies to insure adequate employment preparation and reassignment procedures and on job analysis to determine physical demands of positions. Studies of job performance will be done on a continuing basis, either complete or spot check, to be used as guides in future placements.

The commission will continue to stress the need for, and within the limits of its authority aid in the development of adequate health and safety programs for federal employees, so that disabled veterans and other impaired workers will be judiciously placed in positions where they may function proficiently and safely.

SHEATHING OF THE RETINAL VEINS IN MULTIPLE SCLEROSIS

C. WILBUR RUCKER, M.D.
ROCHESTER, MINN.

A number of patients afflicted with multiple sclerosis present on ophthalmoscopic examination a peculiar white sheathing of some of their retinal veins. In certain instances it appears as a thickening of the walls of the veins, especially in their peripheral branches. In other instances it takes the form of small white plaques overlying the veins, and there occasionally may be a constriction in caliber of the lumen.[1]

In the normal retina the walls of the blood vessels are transparent and therefore invisible. Only the column of blood within them is seen by the examiner. On the head of the optic nerve an excess of supporting tissue may at times form white cuffs around the vessels. When these cuffs are limited to the optic disk they are merely developmental anomalies. When they extend beyond the margins of the disk they indicate the previous presence of an inflammatory reaction or papilledema, particularly if there is an accompanying disturbance of the pigment.

Incidence of Multiple Sclerosis in Cases of Sheathing of the Retinal Veins

	Cases
Multiple sclerosis present	31
Multiple sclerosis suspected	11
No evidence of multiple sclerosis	8
Total	50

Thickening of the vascular walls away from the disk is almost always indicative of disease. It may be found, for example, in retinitis of diabetes or of hypertension, in retinal phlebitis or in the vessels overlying a healed patch of choroiditis. In all these conditions the sheathing can be explained by associated changes in the fundus.

From the Section on Ophthalmology, Mayo Clinic.
Read before the Section on Nervous and Mental Diseases at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 14, 1944.

1. Rucker, C. W.: Sheathing of the Retinal Veins in Multiple Sclerosis, Proc. Staff Meet., Mayo Clin. **19**: 176-178 (April 5) 1944.

Venous sheathing that occurs without any other visible disease in the retina seems to have special significance and is illustrated in the accompanying reproductions of photographs of the fundus.

The most common type of sheathing is that seen in figures 1 and 2, in which the wall of the vein seems to be thickened. In figure 2 and also in figure 3 there is a localized constriction in the caliber of the vein, suggesting that the thickening of the wall may have invaded the lumen. The dense white plaques illustrated in figure 4 are encountered less frequently than sheathing. Opacities in the posterior portion of the vitreous occasionally accompany the changes in the veins. They may be ring shaped, as shown in figure 5, or they may be linear or nodular.

In none of the cases in which this sheathing was encountered did there appear to be any involvement of the retinal arteries.

From May 1941, when I first noticed that this type of perivenous sheathing seemed to be encountered more frequently in multiple sclerosis than in other conditions, until March 1944 I observed it in 50 cases, shown in the accompanying table. I found that a diagnosis of

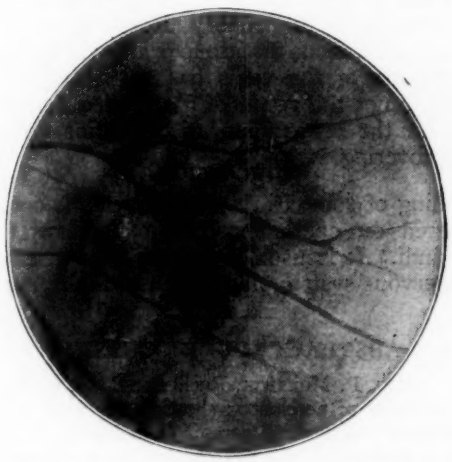

Fig. 1.—Thin sheathing toward the periphery of a nasal vein in the right eye.

multiple sclerosis had been made by a competent neurologist in 31 of the 50 cases. The diagnosis had been made largely on clinical grounds; the cerebrospinal fluid had been examined in relatively few instances. In 11 other cases the presence of multiple sclerosis had been suspected. In these cases the diagnosis apparently was a neurologic problem; multiple sclerosis was one of two or more possibilities considered. In the remaining 8 cases a diagnosis of multiple sclerosis was not made. In the first group the patients had the signs and symptoms generally accepted as evidence of multiple sclerosis. There is no need of discussing these cases further.

The patients in the second group, in which the presence of multiple sclerosis was suspected, deserve some comment. The first patient was a woman aged 24 who had what was called "degenerative disease of the spinal cord." The second was a man aged 27 who had had diplopia for five days five years previously and poor vision in the left eye for eight months and in the right for two months. The third patient was a woman aged 46 who had progressive weakness and spasticity of her legs of undetermined origin. The fourth was a man aged 24 who had periodic ataxia which the neurologist stated was due either to heredodegenerative cerebellar ataxia or to multiple sclerosis. The fifth was a man aged 59 who, the neurologist recorded, had all the signs and symptoms of multiple sclerosis; however, the neurologist hesitated to make such a diagnosis because of the age of the patient. The sixth patient was a man aged 37 who had unilateral acute retrobulbar neuritis and recovered within a month after the onset

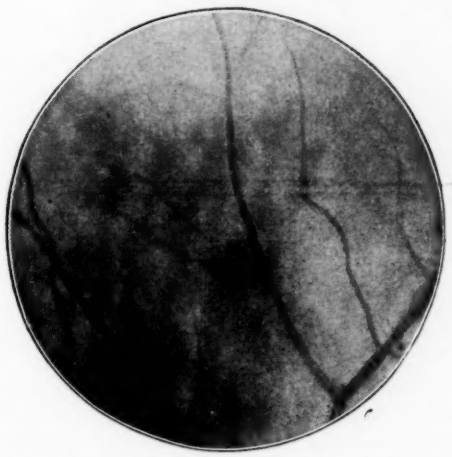

Fig. 2.—Branch of a left superior temporal vein showing thickening of its wall toward the upper periphery and a localized constriction in its caliber below, near its origin.

of the disease. The seventh patient, a man aged 30, had acute optic neuritis of undetermined origin. Physicians who have studied disorders of the optic nerve know that patients 6 and 7 stand better than a two to one chance of having symptoms of multiple sclerosis within the next few years and that the visual loss is likely to be the first episode in the disease. The eighth patient was a man aged 52 who had been troubled by urinary incontinence for twelve years. The diagnosis was degenerative disease of the spinal cord allied to multiple sclerosis. The ninth was a man aged 49 for whose condition a tentative diagnosis of multiple sclerosis was made. Examination of the spinal fluid

Fig. 3.—Constriction similar to that in figure 2 in the left inferior temporal vein beyond its first arterial crossing.

showed the colloidal gold curve to be of the zone 1 type. Pneumoencephalography disclosed somewhat enlarged ventricles, however, and this raised the question of the possibility of arachnoiditis. The tenth patient was a woman aged 36 who for two years had had recurrent episodes of numbness of her hands which had been partly relieved by wrapping them in hot towels. The eleventh patient was a man aged 21 who had been having

attacks of paresthesia for six months. That he drank excessive quantities of hard liquor and had a large liver complicated the picture and made an exact diagnosis difficult. If the patients in this group did not have multiple sclerosis, whatever they had at least resembled it.

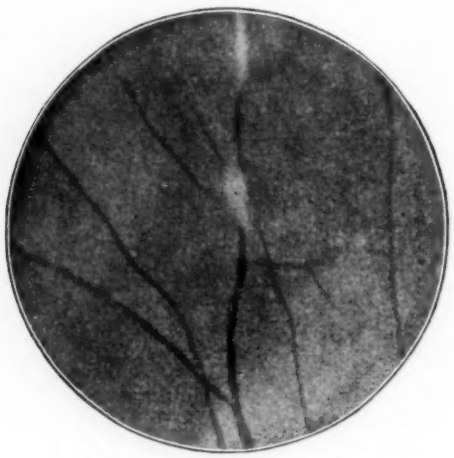

Fig. 4.—Dense localized sheathing.

The third group, those for whose condition a diagnosis of multiple sclerosis was not made, require less comment. The first of these patients was a woman aged 51 who had latent syphilis and had had several nervous breakdowns. A serologic test for syphilis was negative. The second patient, a woman aged 48, was seen after an unexplained attack of vertigo of several days' duration. The third was a housewife aged 23 who had no symptoms and who did not undergo a neurologic examination. Patients 4, 5, 6 and 7 of this group were thought to be psychoneurotic. The eighth patient was a man aged 36 who had severe diabetes of recent onset. Ophthalmoscopy did not reveal diabetic retinitis, but

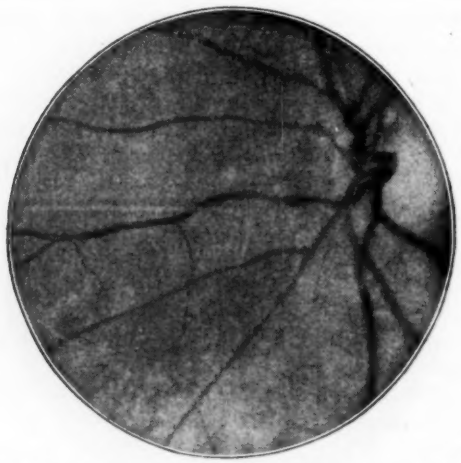

Fig. 5.—Opacity in the posterior part of the vitreous of the right eye of a patient who had peripheral sheathing in both eyes.

on the superior temporal vein in the right eye there was a thin sheath and a localized constriction in the caliber of the lumen. No evidence of multiple sclerosis was found on neurologic examination. This patient and number 3 of this group are the only ones of the whole series of 50 who could be said to have normal nervous systems.

The ages of the patients in the whole group ranged from 18 to 59 years; the average age was about 35 years. The time since the onset of the first symptom of multiple sclerosis ranged from two weeks to twenty-one years. The sheathing does not appear to have been the result of previous retrobulbar neuritis or optic neuritis, for only 13 patients gave a history of having had visual disturbances. It is not related to optic atrophy, as only 16 patients had pallor of the optic disks. Apparently retinal perivenous sheathing occurs at any age and during any time in the course of the multiple sclerosis and is not related to visual difficulties. Its incidence may be close to 20 per cent, as one of my associates examined the eyegrounds under good mydriasis in a series of 52 cases of multiple sclerosis and found sheathing present in 10 of them.[2]

COMMENT

The nature of the sheathing is difficult to interpret from ophthalmoscopy alone. As yet, no eyes have become available to me for study under the microscope. The fundal picture bears a resemblance to a feature observed by a number of pathologists in their sections of the central nervous system of persons who died of multiple sclerosis, namely an accumulation of cells around venules, although it does not seem to shed new light on the problem of determining whether this represents a reaction to primary degeneration of nerves or whether the venous disease is primary. In the retina, no thrombosis of the veins has been observed. The sheathing is not the result of a so-called demyelinating process, for the nerve fibers of the retina do not have a myelin covering.

CONCLUSION

Sheathing of some of the retinal veins is occasionally encountered on ophthalmoscopy of otherwise normal ocular fundi. It is usually indicative of disease of the central nervous system, most often of multiple sclerosis.

ABSTRACT OF DISCUSSION

Dr. Frederick P. Moersch, Rochester, Minn.: It is strange that the presence of perivenous sheathing in multiple sclerosis, which is readily recognized once it is looked for, should have escaped the attention of the neurologist and ophthalmologist up to this time. One would like to know the significance of the perivenous sheathing, but Dr. Rucker is cautious and avoids attempting an explanation. If one has in mind a possible vascular basis for the development of multiple sclerosis one might expect to observe perivenous sheathing relatively early in the disease process. I believe the author has not found this to be true. I should like to ask Dr. Rucker whether perivenous sheathing tends to progress, regress or remain constant. According to Dr. Rucker, sheathing of the retinal veins was present in approximately 20 per cent of a series of cases of multiple sclerosis. It is noteworthy that perivenous sheathing and pallor of the optic disks appear to be unrelated. I wonder if Dr. Rucker has any figures on the occurrence of perivenous sheating in other types of retrobulbar neuritis. Perivenous sheathing is not to be considered as a pathognomonic sign of multiple sclerosis, but as yet no single clinical sign is pathognomonic of this mysterious disease. Until pathologic studies of the affected vessels are completed, one will have to be cautious in the interpretation of the presence of perivenous sheathing.

Dr. R. P. Mackay, Chicago: Several years ago Dr. Putnam sponsored the theory that multiple sclerosis is due to venous thromboses in the central nervous system. There is considerable debate about this matter at the present time. It certainly cannot be without significance that entirely independently of any of the researches of Dr. Putnam or those who preceded him in this field Dr. Rucker brings us today his significant findings. His facts can be used in support of the theory that multiple sclerosis is due to venous thromboses. It can also be used, as

2. Treusch, J. V., and Rucker, C. W.: The Incidence of Changes in the Retinal Veins in Multiple Sclerosis, Proc. Staff Meet., Mayo Clin. **19:** 253-254 (May 17) 1944.

Dr. Rucker indicated, as evidence that the plaques of multiple sclerosis are not primarily demyelinated plaques but that the demyelination itself is secondary to some disease occurring in the wall of the blood vessel. When Dr. Rucker speaks of "perivenous sheathing," he perhaps will admit that the prefix "peri" may be inappropriate. The "sheathing," so called, which he describes and which we saw in his projections, is actually, I believe, to be interpreted as a thickening of the wall of the vessel itself.

DR. C. W. RUCKER, Rochester, Minn.: This perivenous sheathing visible in the retina has been found both early in the disease and late in the disease. I do not know how early it occurs. I have seen it occur in patients who had had evidence of multiple sclerosis for only two weeks. As yet I have not had the opportunity of following any of these patients over a long period of time or of making repeated observations. I have not encountered it in any other types of retrobulbar neuritis than the type due to multiple sclerosis. Dr. Mackay's criticism of my choice of the words "perivenous sheathing" is, I think, well taken. As yet, though, I do not know what word to use for it. That is only a tentative descriptive term. If he has a better one I should like to know what it is.

ANEMIA THERAPY

REVIEW OF VARIOUS LIVER AND STOMACH FRACTIONS AND IRON SALTS

E. J. TEETER, M.D.
INDIANAPOLIS

It has been eighteen years since the announcement of Minot and Murphy [1] of the spectacular beneficial effect of raw liver therapy on patients having addisonian pernicious anemia. In that eighteen years there have been developed many extracts of liver and these extracts have contributed immeasurably to the ease and effectiveness of primary anemia therapy. However, therapy has been somewhat complicated by the multitude of products made available. It has been my experience that this multiplicity of liver extracts leads to confusion in the choice of an extract to prescribe. This confusion exists both in regard to high and low potency extracts and in regard to oral and intramuscular methods of administration.

A rapid review of the development of liver therapy from its inception following the work of Minot and Murphy through the development of stomach tissue extracts by Sturgis and Isaacs [2] in 1929 to the present time will serve to outline the differences in liver extracts and clarify confusion existing concerning the many types available.

The accompanying diagrams illustrate several fundamental steps in the processing of liver extracts. These several steps by no means include all of the processes necessary, but they do show complete processing in brief and represent the essential steps necessary in the production of both oral and intramuscular liver extracts containing the antipernicious anemia factor effective in the control of primary anemia.

In 1927 and again in 1928 Cohn and his co-workers [3] published the results of their investigation on the preparation of a liver extract low in volume but high in antianemia potency. In 1930 Whipple and his colleagues [4] published a report on a liver extract which they called the secondary anemia fraction.

First step:

Raw ground liver
+
Water
+
Heat (approximately 85 C.)

The first step was the grinding of raw liver into water, the temperature of which had been adjusted to approximately 85 C. In the initial work the p_H of this suspension was made either alkaline or acid, but subsequent events proved that this adjustment of p_H was not essential.

Second step:

Raw ground liver
+
Water
+
Heat (approximately 85 C.)
↓
Precipitate | Filtrate

In the second step it is seen that as a result of raising the temperature to 85 C. there was formed a precipitate and a filtrate. Both the precipitate and the filtrate were administered to known addisonian pernicious anemia patients to determine which of the two contained the antianemia principle. It was found at this point that the filtrate produced a response in the peripheral blood stream.

Third step:

Raw ground liver
+
Water
+
Heat (approximately 85 C.)
↓
Precipitate | Filtrate
↓
Concentrated under vacuum
(Cohn fraction D)
+
Ethyl alcohol 70%
(C_2H_5OH)

The third step consisted in concentrating the filtrate under vacuum to reduce its volume. This concentrate was found to be more effective than any previously found extract. It was given the name Cohn fraction D. It should be emphasized that the term Cohn fraction D is not the name of the antipernicious anemia factor; it merely designates one fraction of whole fresh liver which is effective in primary anemia. To this concentrate was added 70 per cent ethyl alcohol as a precipitant. This was a further step in reduction of volume but with preservation of activity.

As a result of the addition of the 70 per cent alcohol, the fourth step was the separation of the precipitate

Fourth step:

Raw ground liver
+
Water
+
Heat (approximately 85 C.)
↓
Precipitate | Filtrate
↓
Concentrated under vacuum
(Cohn fraction D)
+
Ethyl alcohol 70%
(C_2H_5OH)
↓
Precipitate (Whipple) | Filtrate

from the filtrate and the testing of these components on patients having anemia. In spite of a reduction in volume of material, the antianemic potency was pre-

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From the Lilly Research Laboratories.

Read before the Section on Miscellaneous Topics, Sessions for the General Practitioner, at the Ninety-Fourth Annual Session of the American Medical Association, Chicago, June 15, 1944.

1. Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet, J. A. M. A. **87:** 470 (Aug. 14) 1926.

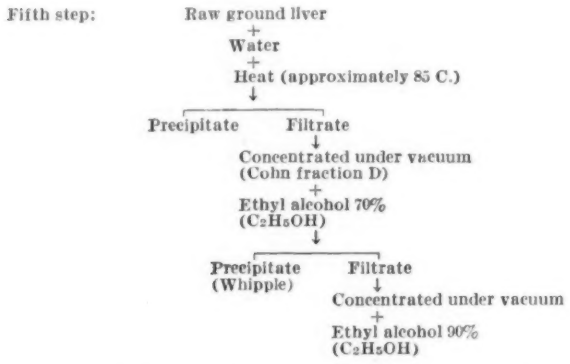
2. Sturgis, C. C., and Isaacs, Raphael: Desiccated Stomach in the Treatment of Pernicious Anemia, J. A. M. A. **93:** 747 (Sept. 7) 1929.

3. Cohn, E. J.; Minot, G. R.; Fulton, J. F.; Ulrichs, H. F.; Sargent, Florence; Weare, J. H., and Murphy, W. P.: The Nature of the Material in Liver Effective in Pernicious Anemia, J. Biol. Chem. **74:** 69, 1927. Cohn, E. J.; Minot, G. R.; Alles, G. A., and Salter, W. T.: The Nature of the Material in Liver Effective in Pernicious Anemia: II., ibid. **77:** 325, 1928.

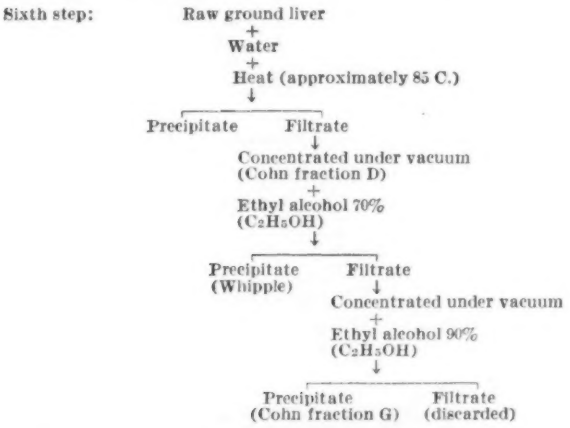
4. Whipple, G. H., and Robscheit-Robbins, Frieda S.: Blood Regeneration in Severe Anemia: XXI. A Liver Fraction Potent in Anemia Due to Hemorrhage, Am. J. M. Sc. **179:** 628, 1930.

served in the filtrate. The precipitate at this point is the secondary anemia fraction of Whipple.

Since the investigators knew from previous experience that concentration under vacuum of the filtrate did not harm the potency, the fifth step consisted in again concentrating under vacuum and adding 90 per cent ethyl alcohol.



In the sixth step the precipitate and filtrate formed as a result of adding the 90 per cent alcohol were separated



and once more the potency of each was tested on primary anemia patients. In this instance it was found that the filtrate did not contain antianemic potency, whereas the precipitate was highly potent and produced a very satisfactory increase in reticulocytes and subsequently red blood cells. This last precipitate was given the name Cohn fraction G and represents the first liver extract generally available, which was extremely small in bulk but high in antianemic potency.

A glance at the completed diagram shows that there are two filtrates and one precipitate, each of which contains the antianemic factor and each of which could be used in the treatment of primary anemia. Thus we have at this point three products from which to choose. Various precipitants other than ethyl alcohol can be used and will result in the formation of extracts containing the antianemia principle in varying quantities. The possibilities are actually limited only by the number of precipitants available.

It was Dr. Raphael Isaacs who in 1929, in collaboration with Sturgis [2] and Sharp,[5] carried on the experiments which demonstrated that an extract prepared from stomach tissue produced a satisfactory increase in reticulocyte percentage and subsequent increase in red blood cells. The first stomach extract was made by desiccating fresh whole hog stomach and resulted in a product 30 Gm. of which represented approximately 190 Gm. of fresh tissue. They carried the processing further and succeeded in producing a stomach tissue extract 30 Gm. of which represented as much as 218 Gm. of fresh tissue. This, then, meant that there were available both liver and stomach tissue extracts for the oral treatment of primary anemia.

Up to this time there were available only oral products. The eminently satisfactory results obtained with these oral extracts encouraged investigators to attempt the preparation of intravenous liver extracts. Late in 1930 Gansslen [6] published a report on an injectable liver extract. Details of the processing were not included in the article.

Cohn [7] was able to prepare fractions of whole fresh liver which gave no specific protein reactions. Still later Cohn [8] and West [9] and their co-workers prepared various active fractions which were given intravenously.

The methods of preparation of these early intravenous extracts were such that only small amounts could be prepared for experimental use. Castle and Taylor [10] attempted the preparation of an intravenous extract and used the original Cohn fraction G. This particular fraction of liver was precipitated in 95 per cent alcohol, and the precipitate was found to be readily soluble in water. It was largely free of reaction-producing substances. The potency of the extract was so high that a single intravenous injection of extract derived from 100 Gm. of raw liver would produce a maximal reticulocyte response within five days and an increase of 1,000,000 red blood cells within ten days. The smallness of the volume dosage and the amount of raw liver represented are more spectacular when it is remembered that successful treatment of pernicious anemia requires as much as 500 Gm. of raw liver orally per day. Subsequent to this first work on intravenous extracts, Strauss, Taylor and Castle [11] discovered that they could produce very satisfactory remissions in patients following the single intravenous injection of an extract derived from as little as 20 Gm. of fresh raw liver.

At this time, then, there were available several oral products prepared from liver tissue and from stomach tissue, to which were added the intravenous liver preparations.

It was found that the intravenous extracts produced a goodly number of delayed reactions despite the fact that apparently all protein substances had been removed. These reactions produced no untoward results but were not pleasant, and it was believed that further improvement could be made in the extract by consideration of the possibility of intramuscular injection.

Strauss, Taylor and Castle [11] used as a starting point for intramuscular preparations the Cohn fraction G.

5. Sharp, E. A.: An Antianemic Factor in Desiccated Stomach, J. A. M. A. **93**: 749 (Sept. 7) 1929.

6. Gansslen, M.: Ein hochwirksamer, injizierbarer Leberextrakt, Klin. Wchnschr. **9**: 2099, 1930.

7. Cohn, E. J.; McMeekin, T. L., and Minot, G. R.: The Nature of the Substance Effective in Pernicious Anemia: III. Am. J. Physiol. **90**: 316, 1929.

8. Cohn, E. J.; McMeekin, T. L., and Minot, G. R.: The Nature of the Substance Effective in Pernicious Anemia, Tr. A. Am. Physicians **45**: 343, 1930.

9. West, Randolph, and Howe, Marion: Liver Fractions in Pernicious Anemia, J. Clin. Investigation **9**: 1, 1930.

10. Castle, W. B., and Taylor, F. H. L.: Intravenous Use of Extract of Liver: Maximal Responses of Reticulocytes from a Single Injection Derived from One Hundred Grams of Liver; Preliminary Communication, J. A. M. A. **96**: 1198 (April 11) 1931.

11. Strauss, M. B.; Taylor, F. H. L., and Castle, W. B.: Intramuscular Use of Liver Extract: Maximal Responses of Reticulocytes from Daily Intramuscular Injection of Extract Derived from Ten Grams of Liver, Preliminary Communication, J. A. M. A. **97**: 313 (Aug. 1) 1931.

This fraction of whole fresh liver was put into distilled water, subjected to heat, a preservative was added, the p_H was adjusted to approximately 7.4 and a buffer was added. The filtrate resulted in a product each 10 cc. of which represented approximately 50 Gm. of fresh liver. This extract, when administered intramuscularly to pernicious anemia patients, gave a highly satisfactory response and had none of the obvious disadvantages of an intravenous injection. Thus was added still one more form of liver extract therapy possible in the treatment of primary anemia.

In the last few years research work on liver extract has continued with two main objectives: (1) the isolation and identification of the substance effective in pernicious anemia and (2) increase of the potency per volume dose.

The identification of the active principle has not been accomplished.

The concentration of the antianemia principle in small volume dosage has been successful, and intramuscular extracts are available which need be given in only 1 cc. or a fraction of 1 cc. doses at intervals of ten to fifteen days. The oral products have not been concentrated nearly as much. The daily dosage of oral liver extracts is still rather large in weight. However, one step forward in reducing the bulk of the daily oral dose was accomplished by Walden and Clowes.[12] They found that the digestion of stomach tissue with liver tissue resulted in a preparation which had a potency of three to four times that of the raw liver from which it was derived. Similar experiments were conducted using the Cohn fraction G treated with fresh ground stomach tissue, and this also yielded a product having a three to four fold gain in potency. However, the bulk or volume of the daily required dose of oral extracts still remains high compared to that of the intramuscular.

Research work of these many years has made available many oral and intramuscular products each of which will produce results if given in the proper daily dosage or as an accumulative dosage given at intervals of days to weeks.

The problem which confronts us as physicians is one of choice among these products. First we should consider the oral, the intravenous and the intramuscular routes of administration. The intravenous has no advantage and several disadvantages when compared to the intramuscular extracts and therefore can be eliminated at once. This then leaves us with a choice between the oral and the intramuscular extracts. Oral products contain the antianemia principle and have the advantage of method of administration. However, because addisonian pernicious anemia is primarily a disease of the gastrointestinal tract, the antianemia factor in oral products may not be absorbed effectively, especially in the acute stages of primary anemia. Intramuscular extracts are the products of choice because of their low volume dose and because absorption is assured, once the material is deposited in the muscle.

Having made a choice of either the oral or the intramuscular method of administration, there still remains the question of potency of the various products. Several years ago a U. S. Pharmacopeia committee was chosen for the purpose of establishing standards for both oral and intramuscular products. Because the antianemia principle itself has never been identified and because there is no laboratory animal test satisfactory, it was necessary to establish standards on the human patient. This was done by the United States Pharmacopeia Anti-Anemia Preparations Advisory Board and we now have available products which conform to a U. S. P. standard unit. Hence our choice of various products from the standpoint of potency narrows itself to one of either the high or the low potency in terms of U. S. P. units.

For several years there has been a difference of opinion as to whether higher potency, or so-called "refined" liver extracts, are complete treatment for the patient having neurologic signs and symptoms of addisonian pernicious anemia. In our clinic we have found that the high potency intramuscular liver extracts will relieve the pernicious anemia patient of his anesthesia and paresthesia and diminution in vibratory sense. The only exceptions are those patients whose posterolateral sclerosis has progressed so far that the changes are irreversible. Fortunately, the number of these patients is small. In that small group whose neurologic signs and symptoms do not respond to the higher potency intramuscular liver extracts we have failed to produce any appreciable improvement in their condition when therapy has been changed to the more so-called "crude" liver extracts. The criticism could be made at this point that the therapy with the crude extracts should have been used as initial treatment and that the time spent in using the more refined liver extract was the margin of safety which the patient had in the reversibility of his neurologic signs and symptoms. However, our results when only the crude liver extracts were available were no better than they are at present with the use of the higher refined extracts. Therefore we are of the opinion that the higher potency extracts will do everything for an addisonian pernicious anemia patient that the crude liver extracts will do.

IRON SALT THERAPY

Iron salt therapy has run a somewhat parallel course to that of liver and stomach therapy in that there have been several different salts available and much difference of opinion on the relative efficacy of these iron salts. Much excellent clinical research work has been done on iron salt therapy and the recommendations today can be summarized very briefly. At present the consensus is that any iron salt suitable as a therapeutic agent will produce a rise in the hemoglobin if that iron salt is given in the proper dosage. In general, ferrous iron salts will produce a higher percentage hemoglobin rise than will ferric iron salts when given in equal dosage. It has been found that 15 grains (1 Gm.) of ferrous sulfate is a good average daily dose. If one prefers to use iron and ammonium citrates, which is a ferric iron salt, the dose should be two or three times that of the ferrous iron salt, and the result in hemoglobin response will be equally satisfactory with the lower dose of ferrous iron. There is little to be gained in attempting to differentiate between response to one ferrous salt and another ferrous salt. The same is true of the ferric salts. The choice lies between the ferrous and the ferric salt, with adjustment of the dosage according to the one chosen.

The dosage of liver extracts and iron salts cannot be arbitrary. Red blood cell counts and hemoglobin determinations, while they do require time, provide the only accurate measures of dosage of antianemia therapy.

12. Walden, G. B., and Clowes, G. H. A.: Pernicious Anemia: Method Whereby Therapeutic Efficacy of Liver and Liver Fractions May Be Substantially Increased, Proc. Soc. Exper. Biol. & Med. **29**: 873, 1932.

SUMMARY

The choice of anemia therapy from among many preparations developed in the past eighteen years can be facilitated by consideration of the following factors:

1. Oral versus intramuscular extracts.

2. Intramuscular liver extracts are more surely absorbed and, by the same token, more effective, particularly in the acute stage of primary anemia.

3. Oral extracts are more convenient both for the physician and for the patient and can be used effectively for maintenance.

4. Stomach and liver extracts standardized according to the requirements of the United States Pharmacopeia should be prescribed.

5. Any iron salt suitable as a therapeutic agent can be prescribed. Ferric salts require two to three times as much daily as is required of ferrous salts.

6. Size of the daily dose of antianemic therapy cannot be judged in terms of units or grains. Red blood cell count and hemoglobin determination are safe guides, and enough therapy should be prescribed to produce the desired results.

ABSTRACT OF DISCUSSION

Dr. Francis D. Murphy, Milwaukee: From observations of 339 cases of pernicious anemia, studied at Milwaukee County Hospital during the period from 1930 to 1943, it was found that accuracy in diagnosis improved steadily. In a review of 80 cases observed over a period of ten years 43, or 53.75 per cent, were not diagnosed accurately by the first physician consulted, and in 11.25 per cent the first three physicians consulted failed to make the correct diagnosis. Eighty-six per cent of the cases were not adequately studied until hospitalization. Since the standardization in this country of various liver extracts according to unit potency, treatment has been more effective and uniform, but there still is lack of unanimity of opinion concerning methods of administration. The method which has yielded the best results in general consists in giving regular doses of 30 to 45 units, that is almost 2 to 3 cc. intramuscularly every day for the first five or six days, then reduce and spread the doses to 15 units, or 1 cc., two or three times a week, and then 15 units weekly until the red blood cell count has risen to normal. The maintenance dose in our clinic consists of 15 units about once a month. Sometimes a so-called resistant case is found, but these cases are rare. When there is a lack of proper response the diagnostic work should be checked closely, for another disease may be present which interferes with the proper responses. In the presence of infection or when any serious complication such as heart disease, nephritis or tuberculosis is present there may be modification in the responses we looked for. In 64.7 per cent of our 339 cases there was some disease other than pernicious anemia. Allergic reactions are more common than we thought, as 27.5 per cent of our patients had reactions. Nineteen of our 80 patients discontinued treatment and the period of lapse ranged from three months to five years. As there is no satisfactory method of gaging the exact amount of liver or stomach substance required by individuals, it is best to use these extracts according to the general plan found most effective in the majority of the larger clinics throughout the country. The extracts have been standardized, and the plan of management is becoming quite uniform.

Dr. Raphael Isaacs, Chicago: Further progress is hampered by the lack of untreated patients with pernicious anemia in relapse on whom newer products could be evaluated. Such patients should be reported to laboratories testing liver extract, and the treatment can be carried out in cooperation with the physician. Liver extract is of value when the red blood cells are larger than normal and the color index is high. As the percentage of hemoglobin varies with the instrument used, the value should be reported in grams. If three times the number of grams is greater than the first three figures of the red blood cell count, the "color index" is high. If the number is lower there is an iron deficiency and iron is needed. As Dr. Teeter has pointed out, any type of iron is effective but many patients suffer from iron poisoning (pain, nausea, vomiting, constipation, abdominal discomfort). Reduced iron is very effective, but ferrous sulfate appears to be the most economical form because of the smallness of the dose, and it is the most generally used. It appears to be equally effective before or after meals, but after meals is the logical time for administration. In some patients the formation of blood is facilitated by thyroid, bile, high protein intake and whole liver. Occasionally patients with iron deficiency are encountered and no type of iron therapy appears to influence their blood picture. When medicines containing calcium or phosphorus are given for long periods, the absorption of iron is defective.

Dr. E. J. Teeter, Indianapolis: The importance of doing a blood count and hemoglobin for the successful treatment of anemia and for the diagnosis of anemias cannot be overemphasized. Frequently we receive letters or appeals for help, or patients are sent in, even when the attending physician has done an excellent job but has missed accurate diagnosis and treatment by not doing three or four blood counts and hemoglobins, preferably by one of the best methods, not the Tallqvist. I urge you to do these blood counts. Many times they will save your time, your patient's time and perhaps unnecessary treatment. There are a great many patients who do not tolerate sufficient iron. Several years ago Dr. Reznikoff asked his chemist to prepare a ferrous gluconate. Dr. Reznikoff did not know definitely that ferrous gluconate was the answer, but he had observed many patients who could not tolerate iron and he wanted an iron salt which could be tolerated. The ferrous gluconate was given to patients unable to tolerate other forms of iron salts, and 1 patient's response will serve to illustrate his experience and subsequently my own. One patient received as little as 2 grains (0.13 Gm.) of ferrous sulfate daily and experienced gastrointestinal upsets, and there was every reason to believe they were due to the iron. She was given as much as 30 grains (2 Gm.) of ferrous gluconate and tolerated it well. Each time I encounter a patient who cannot tolerate iron I give ferrous gluconate. The dosage is the same as for other ferrous salts, although the actual iron content is a little lower. Ferrous sulfate has about 20 per cent iron and ferrous gluconate 12 per cent, but the end results are the same. It was first thought that the reactions were true protein reactions. Last year Dr. Feinberg of Chicago published an article in the *Annals of Internal Medicine* on experiments in which he had separated liver extract into protein and nonprotein fractions. Curiously, it was the nonprotein fractions which resulted in reactions. I believe these are true anaphylactic reactions easily treated with a small dose of epinephrine.

Classic Descriptions of Drug Actions.—Now elsewhere Helen turned her thoughts, the child of Zeus. Straightway she cast into the wine of which they drank a drug which quenches pain and strife and brings forgetfulness of every ill. He who should taste it, mingled in the bowl, would not that day let tears fall down his cheeks although his mother and his father died, although before his door a brother or dear son fell by the sword and his own eyes beheld. Such cunning drugs had the daughter of Zeus, drugs of healing virtue, which Polydamna gave, the wife of Thon, in Egypt, where the fruitful soil yields drugs of every kind, some that when mixed are healing, others deadly. There every one is a physician, skilful beyond all humankind; for they are of the race of Paeon. So after she had cast the drug into the bowl and bidden pour, then once more taking up the word, she said: ". . . They talk a little about the greatness of Odysseus—about long enough for the drug to take effect." Then "discreet Telemachus" remarks "Nay, bring us to our beds, that so at least, lulled in sweet sleep, we be at ease."—Homer's Odyssey, fourth book, George Herbert Palmer's translation.

Special Article

AMERICAN HEALTH RESORTS

THE PROBLEM OF THE AMERICAN SPAS

RICHARD KOVACS, M.D.
NEW YORK

These special articles on spa therapy and American Health resorts were prepared under the direction of the Committee on American Health Resorts. The opinions expressed are those of the authors and do not necessarily reflect the opinion of the committee. These articles may be published later as a Handbook on Health Resorts.

A spa is an institution, developed around a mineral spring or springs, which makes curative use of the water in conjunction with other natural resources and physical treatment agencies, such as rest, exercise and diet. A well organized spa must provide suitable physical facilities and trained technical help to administer these therapeutic agents, as well as competent medical supervision. No other country is so richly endowed with natural resources and such a variety of climate as our own United States; yet in contrast to the world renowned spas of the continent of Europe, which up to the time of the present world war have attracted yearly many thousands of American health seekers, in the past few decades the status of many American spas has medically and economically deteriorated rather than progressed. In a textbook on American spas written in 1927, Fitch [1] reported 431 active spring areas with 871 springs and listed 17 spas as the "Great American Spas"; he stated that some 240 former spas had been abandoned. Stearns and his associates,[2] reporting for the U. S. Geological Survey in 1936, found 184 thermal springs developed for economic use. The 1943 edition of Clendening and Hashinger's popular book [3] on treatment enumerates only 34 active springs, among these only 6 of Fitch's Great American Spas. The recent report of the Baruch Committee on Physical Medicine [4] states that American spa resorts have been disappearing at a rapid rate and that only two or three spas in the United States attempt a serious medical regimen.

A striking illustration of the difference in appreciation of the official status of the spas abroad and those in the United States was in evidence at the 1939-1940 New York World's Fair. There were seen impressive exhibits of the health resorts of France, Great Britain, Italy and Switzerland; literature was distributed about the health advantages of these resorts and treatments they offer; in addition, a list of qualified physicians at each resort and a full price scale of every item of treatment and accommodation were available. In contrast, there was no exhibit of the American spa system, either as a whole or as a part of the public health and medical exhibit. Only in some of the state exhibits were views of the recreational facilities or the buildings of the state's favorite resort shown, but no attempt was made anywhere for a concerted demonstration of the curative features of any spa.[5]

1. Fitch, William Edward: Mineral Waters of the United States and American Spas, Philadelphia and New York, Lea & Febiger, 1927.
2. Stearns, N. D.; Stearns, H. T., and Waring, G. A.: Thermal Springs in the United States, U. S. Dept. of the Interior, Geological Survey, Washington, D. C., U. S. Govt. Printing Office, 1937.
3. Clendening, Logan, and Hashinger, Edward H.: Methods of Treatment, ed. 8, St. Louis, C. V. Mosby Company, 1941.
4. Report of the Baruch Committee on Physical Medicine, April 1944.
5. Kovacs, Richard: American Spas, M. Rec. **53**: 254 (April 2) 1941.

EUROPEAN VS. AMERICAN SPAS

The success of the health resorts of Europe has been due to a number of factors. Practically all foreign resorts are either owned by a municipality or by the state, are situated in beautiful natural surroundings and are attractively developed. Every one connected with them has the one aim of ministering to the needs of those who arrive in quest of health. They are made available to the rich and poor alike and are not regarded merely as a luxury for the society crowd. Many of them specialize in handling one condition or one group of diseases, such as those of the heart, kidneys, lungs or rheumatic ailments, and offer all known resources for the treatment of that particular disease condition. Patients are, as a rule, sent by their physicians who know what means for treatment are available; they are routinely referred to a competent spa physician who checks on their condition and prescribes treatment appropriate for the individual patient. A spa physician sees the patients regularly, while a trained and supervised technical staff administers the treatments. At their close the patient is referred back with a complete report to his home physician. Extensive cooperation is maintained with the outside medical profession by the frequent holding of medical conventions at spas, by the teaching of "balneology," the science of mineral water treatment, at the medical school and the offering of special facilities to physicians and their families.[6]

Conditions in the average American resort are often quite different from the well organized routine of continental resorts. Only a few resorts have any sort of history or tradition. Many of the smaller resorts are located at the site of an accidentally discovered mineral or hot water spring, where a lay owner has erected a few primitive shacks which can be called bath houses only by courtesy. These primitive bath places often only contain a dozen or more tubs in charge of several husky male or female attendants; a waiting space and a few so-called rest rooms with a cot in each complete the equipment. A physician may not even be nominally in charge and often cannot be found for miles. All the bath house owner is interested in is to sell his baths to any one who happens to come along or come on advice of friends or following some crude advertisement. There are no recreational facilities available, and no effort is made to improve the landscaping around the shacks of which the resort consists. Dozens of such wouldbe resorts are strewn all over the American continent from the Empire State to the deserts of New Mexico, Wyoming and California and are visited year in and year out by simple folk suffering from a variety of ailments, chiefly rheumatic. In the large majority of these small bathing institutions no physician ever comes near the place, and patients do not receive any competent medical advice. They would have difficulty in obtaining it because most of the local physicians either are not interested in the bath house or have had no training in prescribing effective bath treatments.

On the other hand, there are quite a few excellent institutions which are in every way comparable to the best health places abroad. They employ a competent medical staff, offer very fine hotel facilities and have not only developed their own natural resources to the fullest extent but in addition use many other treatment facilities. The rates of attendance include, as a rule, all hotel accommodation and treatments. Glen Springs

6. Kovacs, Richard: A European Study Tour, M. Rec., June 10, 1914; Observations on Physical Therapy in Central Europe, Physical Therap. **47**: 115 (Feb.) 1929; The Rheumatic Problem in Great Britain, Arch. Phys. Therapy **17**: 636 (Oct.) 1936.

(now closed) and Clifton Springs, New York, are examples of such high type institutions. Battle Creek Sanitarium, Michigan, now taken over by the Army, also belonged in this class. In a few additional resorts, well regulated and supervised treatments are administered through cooperative efforts of medical men; among these are Sharon Springs, N. Y., Martinsville, Ind., and Marlin, Texas.

A special class of American spas is represented by the "social resorts" such as Hot Springs, Va., White Sulphur Springs (now the Ashford General Hospital), W. Va., and French Lick Springs, Ind., which appear to subordinate the use of their waters to the social enjoyment of life. Their patrons who are reported in the society columns as taking the "cure" do this chiefly in the forms of horseback riding, golf and swimming in indoor pools and drinking five o'clock tea to the strains of a concert orchestra. However, there is usually an excellent medical department with many treatment facilities available. These resorts date back many years and have some real traditions.

There are less than ten health resorts in the United States under direct control or supervision of the federal or state government or municipal administration. Among those is Berkeley Springs, W. Va., perhaps the first summer resort in the United States; Big Horn Springs in Wyoming, Hot Springs in Arkansas, Excelsior Springs in Missouri, and Saratoga Springs, N. Y. In these places much is done to control the proper use of bath facilities and to insure high class medical service. The government owned resorts also provide free baths to the indigent.

Neither the average American nor most of his physicians have been educated by years of tradition in making the best use of treatment in a resort. The average American citizen often goes off to a resort on his own decision, and when he gets there he does not seek a physician's advice as to what water to drink and what baths to take but is perfectly satisfied to consult the hotel clerk, the boarding house keeper or the bath house attendant. He resents being asked to undergo a medical examination before taking the cure. All he wants to do is to take his baths and to continue eating and drinking as he pleases. In some of the more luxurious places, living on the "American plan" of prewar times, he usually overfeeds himself, adding insult to injury. He wishes to be entertained and relaxed in his own way.

Outdoor concerts given under shade trees on a large beautifully landscaped central plaza are the most popular daily entertainment in a European spa. Nothing like this takes place in the modern American resort, although here and there still appear a few deserted band stands as a reminder of a mid-Victorian past. The resort hotels do provide Sunday night concerts, through which many of the older guests sleep peacefully or more or less audibly. The American temperament seeks more active and exciting forms of relaxation. Gambling is one which continues to flourish in some places despite all efforts to suppress or dampen it. Of course, some of the European spas likewise have been notorious for gambling in the past.

The manager of the picturesque old mountain resort of Bedford Springs, Pa., ruefully remarked that in years past whole families used to come to spend the summer "taking the waters" and resting in the peaceful atmosphere; now the children of these families come for week ends only, want dancing and sports and drive along the countryside visiting road houses. They have not learned how to relax and probably never will.

In addition to the changed habits of the modern generation, the economic depression after World War I has made itself felt in changing the frequency and the length of stay of old patrons' visits to the resorts. In order to make up for the lack of volume most of the larger resort hotels began to cater to large conventions. The arrival of carloads of pleasure bent executives or salesmen of insurance or automobiles certainly filled up the hotel but also raised havoc with its peaceful atmosphere when there was a staggering of revelers through the corridors in the wee small hours. The hotels endeavored to reserve whole wings for such visitors, but some of the old standbys disliked to give up their accustomed locations and preferred to go elsewhere to escape the turmoil. The result was a loss in the more steady clientele of the resort.

The report of the Baruch Committee summarizes as the causes for the decline of the spa resorts: (*a*) The undefined status of spas in relation to health and medical care. (*b*) Failure of spa resorts to fulfil their mission. They have not served, adequately, sufficiently large groups or enough different types of people. (*c*) The attempt to combine pleasure with health procedures, the former receiving more emphasis than the latter. (*d*) Inability of private owners to finance resorts without public assistance. (*e*) Short seasons. (*f*) Lack of correlated clinical facilities and well rounded diagnostic services.

THE MEDICAL PROFESSION AND THE SPAS

It is a well admitted fact that for a variety of reasons the medical profession of the United States has not taken much interest in American spas. Perhaps the principal among these reasons is that in medical schools the proper scope of spa and climate treatment is not being taught. Another important reason is that reliable information has not been available from sources which carry authority. In some of the places the spas have published claims regarding their value which are unfounded; this and the lack of good medical supervision and the growth of outright quackish practices in some places have served to antagonize directly the medical profession.[7] There were not enough constructive efforts on the part of the management and the physicians of the few high class spas to counteract these adverse influences. No wonder that in spite of the generally accepted value of the continental spas and the large host of patients streaming there yearly, with or without medical advice, the sentiment of most American physicians toward our own spas has been that of more or less indifference. Except holding occasional medical conventions in one or two of the social resorts, little interest was taken on the part of organized medicine to become acquainted with the spas.

Efforts to change this undesirable situation came in 1936 and 1937 when a group of members of the American Congress of Physical Therapy made study trips through a number of Eastern and Midwestern spas, and at the 1937 annual session of the congress a Committee on Spas and Health Resorts was appointed to survey the spa situation. The committee sent a questionnaire to 152 places and received 70 replies, and its recommendations[8] to improve the status of the spas included discouragement of the use of unfounded claims and testimonials, encouragement of proper medical supervision with clinical and laboratory studies of their natural resources and their application in treating

7. Fantus, Bernard: Our Insufficiently Appreciated American Spas and Health Resorts, J. A. M. A. **110**: 40 (Jan. 1) 1938.

8. Report of the Committee on Spas and Health Resorts, American Congress of Physical Therapy, Arch. Phys. Therapy **20**: 42 (Jan.) 1939.

patients in order to establish sound indications, and encouragement of presentation of established facts to the medical profession by lectures on hydrotherapy, balneology and climatology in medical schools by presentation of papers covering such subjects at medical meetings and by invitations to physicians to visit and inspect the individual spas and climate resorts. It also recommended development of facilities for use of spas and climate resorts at a cost within the reach of persons with moderate means.

Following the publication of this report and chiefly owing to the efforts of the great therapeutist the late Dr. Bernard Fantus, who accompanied the congress committee on one of its trips, the American Medical Association appointed in 1939 a Committee on Health Resorts. After three years of labor this committee published in 1943 and 1944 fourteen articles on the various aspects of American health resorts but had as yet no specific recommendations. On the other hand, the Baruch report made a number of recommendations under the heading of Hydrology and Health Resorts, such as the formation of a hydrotherapeutic center for basic and clinical research, changes in medical curriculums and the establishment of graduate and "refresher" courses in physical medicine and particularly hydrology, as well as the establishment of fellowships and grants-in-aid of research in hydrology.

Action on these well based recommendations undoubtedly will promote the science of hydrology and the interest of the medical profession in spa therapy. There is much need for clearcut studies of the role of the mineral content of the waters as a potent factor in spa therapy as well as that of a well directed physical treatment and dietetic regimen as part of the spa routine. It takes a well grounded and well experienced general therapeutist and diagnostician to evaluate and to employ successfully for the individual patient all agencies of a spa regimen. However, because of the many factors involved much more has to be done besides advancing the science of hydrology and balneology, in order to give spa therapy a new lease on life. It would be of little use to produce scientifically trained balneologists when there is no public demand for their services and when the management of spas does not find it desirable to offer specialized medical service and to keep therapeutic facilities on a high standard.

PRESENT AND FUTURE POSSIBILITIES OF AMERICAN SPAS

The American hospital system, admired the world over, insures skilled and dependable care to rich and poor alike. Health resorts could form another important link in our health system when they are developed to the same high standards. There are great possibilities for well organized and well directed health resorts in every part of the American scene to help large numbers of sufferers from chronic illness and to recondition those who are simply worn out and tired.

The usefulness of a spa regimen is well established [9] in acute and chronic gastric disease, in catarrhal diseases of the gallbladder and milder forms of colonic irritation, in various forms of kidney and gallbladder disease, in catarrhal disorders of the respiratory tract, in many forms of heart disease, in most forms of chronic arthritis and in rheumatic disorders of muscle nerves and tendons, and in some metabolic and skin disorders. Spa therapy has also been proved of immeasurable value to people exhausted after acute illness or operation. Hence the increasing employment of spa treatment in recent years for convalescent care.

Spa treatment is for the first time being employed on a large scale in the United States for service personnel affected by the present global war. In recent months the Army, Navy and Public Health Service have taken over a number of spas and climatic resorts to serve in the military rehabilitation program.[10] Among the new army establishments are the Ashford General Hospital at White Sulphur Springs (the former Greenbrier Hotel), the Station Hospital, Camp Carson, Colorado Springs, Colo., the Fitzsimons General Hospital, Denver, the Percy Jones General Hospital, Battle Creek, Mich. (the former Battle Creek Sanitarium), the well known Army and Navy General Hospital at Hot Springs, Ark., and establishments at Tucson, Ariz., Miami, Fla., and Asheville, N. C. The Bureau of Medicine and Surgery of the Navy has established a naval convalescent hospital at Glenwood Springs, Colo., and hospitals at Asheville, N. C., Yosemite, Calif., and Sun Valley, Ida. The Veterans Administration contemplates establishing hospitals at Saratoga Springs, N. Y., Hot Springs, Salt Lake, Utah, Hot Springs, S. D., Bay Pines, Fla., and Mineral Wells, Texas.

It is safe to assume that the utilization of the spas for purposes of military rehabilitation will serve as a potent stimulus for their future similar use in civilian life. Spa resorts should be used in the future as health centers to raise the level of fitness in those who are free from disease and will be benefited by quiet and leisure to enjoy and appreciate nature or by those who need recuperation from the hectic pace of metropolitan life. In the expected large scale extension of social and health insurance every member of the community should have an opportunity to take advantage of spa treatment instead of the privileged classes. This would add a large number of prospective users of spa and climatic resort treatment.

TASKS AND PROBLEMS AHEAD

In order that American spas may succeed in rendering a high standard of service in the years of national reconstruction to follow, a long range nationwide program under proper leadership is desirable, effecting a change in the present attitude of the medical profession and the public and enlisting the cooperation of the various communities and authorities. The economic status of the resorts must also be improved.

From the medical point of view the carrying out of the recommendations of the committees of the American Congress of Physical Therapy and those of the Baruch Committee is of primary importance in overcoming the lack of information of the large part of the medical profession and in generally raising the status of balneotherapy. After the war there will be many medical men available with a good basic knowledge in general medicine, physical therapy and rehabilitation who will make good material for further training as spa physicians. There will be likewise many good physical therapy technicians, women and men, looking for opportunities to continue their work in rehabilitation. It would be up to a centralized agency to look out for the additional training and placement of these physicians and technicians.

For the information of the medical profession and for the protection of the public, there needs to be a medical authority which could pronounce a spa as an "approved" one, after meeting certain requirements.

9. McClellan, Walter S.: New Trends in Treatment of Chronic Disease: Experience in Spa Therapy, Ann. Int. Med. **18**: 825 (May) 1943.

10. The Utilization of Health Resorts for Military Reconstruction, editorial, J. A. M. A. **123**: 564 (Oct. 30) 1943.

Such an authority already exists in the Committee on Health Resorts of the American Medical Association. This committee provided in 1942 official listing of American health resorts. The pertinent rules relating to listing are:[11]

Claims and Advertising.—The claims made for a resort must be acceptable to the Committee, and all advertising material must be presented with applications. A resort will not be listed or retained if the management makes unwarranted, exaggerated or misleading statements in any of its advertising.

Medical Supervision.—Medical supervision must meet with the approval of the Committee and must be of such character as to place proper safeguards about the patient to protect him from mistreatment or dangerous treatment. Institutions which permit attendants or technicians to alter or supplement a physician's prescription or to prescribe treatment without restrictions or medical supervision will not be listed. An institution applying for listing will be scrutinized most carefully as to the character of the safeguards placed about the patient by way of medical supervision and the efficiency and good faith with which the rules governing these needs are enforced.

Inspection.—An institution which makes application cannot be given formal consideration until it has been inspected by an inspector designated for the purpose by the Committee.

Removal from List.—If in the opinion of the Committee a listed institution fails to live up to the letter and spirit of these rules or engages in practices contrary to established scientific procedure, the Committee may remove the institution from the list.

In spite of the opportunity offered to all resorts to be listed, so far only one institution has received approval and listing.[12]

In England the British Spa Federation[13] in 1939 laid down the following requirements for the spas which are admitted to membership in that body:

1. The possession of natural mineral waters which possess a definite therapeutic value.
2. The existence of sufficient bathing and "pump room" accommodation.
3. The residence in the particular town of medical men who specialize in spa treatment.
4. Suitable hotel and boarding house accommodation.
5. Treatment must be given under the direction of properly qualified medical men.
6. The amenities and sanitary conditions of the town must be duly approved by the Federation.
7. The spa must be under municipal or other approved control.
8. The chief activity of the spa must be the provision of facilities for spa treatment.

A Federation of American Spas should have been formed a long time ago for cooperation of spas to safeguard ethical standards in operation and publicity. The difficulty confronting the planning for a nationwide organization of spas is the previously described differences in setup and economic backgrounds of the various spas under federal, state or municipal control and those privately owned. But with the proper spirit for rendering public service on a high medical and ethical plan and to disseminate information relating thereto, such an organization can be effected. There would seem to be also a role for another national organization, an independent council or foundation which may advise and assist spas to become more useful regionally or nationally, help them in securing medical and technical staff of acceptable standards, and assist in research and also in education of the public and the medical profession. A campaign of education regarding health resorts —once they are established in accordance with desirable standards—would enable the average American citizen to appreciate the possibilities of spa therapy and could be best carried on by such an independent organization, possibly under the auspices of the Baruch Committee.

It is self evident that the success of the spas in rendering health service is dependent on their stable economic foundation. Simons[14] states that the medical and professional phase of spa operation is closely involved at every point with the business side and points out that the overwhelming majority of chronic and convalescent patients are not in the income classes from which the majority of present spa patrons come. This would raise the fundamental question whether spas should be publicly owned and operated or privately operated. The report of the Baruch Committee extols the success of public ownership in conjunction with private medical practice at Hot Springs, Ark., and Saratoga Springs, N. Y. New York State has made a capital investment of nine million dollars in Saratoga Spa and, in spite of the considerable income from bath houses, spends over a quarter of a million dollars tax money for yearly maintenance. This is an example of munificence which not many states can follow. Yet there is no reason why in a number of states some sort of a subsidy could not be granted to spas endorsed by the medical profession and by welfare organizations on the basis of free services to some of the indigents of the state. However, unless the present American system of free enterprise is definitely abandoned in favor of a socialistic form of government, the idea of a health system resting on general taxation does not appear to be warranted. Under a state or federal system of fully tax supported spas the majority of peopl would pay for benefits offered to only a few.

In order to derive funds for spa maintenance and improvement from those directly benefited by the spa, a small tax collected from all spa visitors would seem worth considering. Such a system of taxation has been in operation for many years in most spas abroad, in the form of a "cure tax"; it is collected from every visitor to a spa, graded according to the type of accommodation and the length of stay. After the present era of taxation for everything, there may be less opposition in the United States to this form of taxation, especially when it is known that its proceeds provide civic improvements, landscaping, concerts and the like.

Provisions for those of moderate or very limited income could be made at many spas under the existing system in the large institutions by providing smaller units to furnish service at moderate costs. This is being done at present at Saratoga Springs. Smaller spas, because of the lessened overhead expenses, could easily develop facilities to persons with moderate means. It would seem desirable that, in future health and accident social insurance schemes, provisions should be made which will enable suitable patients to receive spa treatment in regionally designated centers, just as the present war injured are taken care of at spas.

The local community of every health resort should be made aware of the fact that, when properly conducted, a health resort constitutes an important asset to the community, the same as a hospital. It is also a desirable economic asset through the influx of visitors spending money. The cooperation of a local citizens' commit-

11. Reports of Officers: Committee on American Health Resorts, J. A. M. A. **118:** 1487 (April 25) 1942. Revision of Rules, ibid. **120:** 773 (Nov. 7) 1942.
12. Committee on American Health Resorts, J. A. M. A. **124:** 161 (Jan. 15) 1944.
13. What is a Spa? Arch. M. Hydrol. **17:** 124 (July) 1939.
14. Simons, A. M.: Economic Aspects of Health Resort Therapy, J. A. M. A. **124:** 33 (Jan. 1) 1944.

tee could be sought to carry on such civic improvements as will make the surroundings of such places attractive and conducive to rest and recreation. Leading physicians should be included in such committees, and the active help of local medical societies should be sought in all matters pertaining to examination and treatment of all seekers of health. With such cooperation, funds for proper development of some of the smaller resorts will be easier to obtain and there may develop a friendly rivalry between communities boosting their health resorts.

COMMENT

The solution of the problem of the spas is a difficult one because of the many conflicting medical, social, economic and political issues. Improving the medical situation is perhaps the most clearcut issue but in meeting it the advancement of balneology and the creation of a simple supervising agency is not sufficient. If spas are not to be left drifting along with the ultimate survival of the fittest there must be a general advisory and driving force organized either by the spas themselves or by a friendly outside agency. Only by a well guided cooperation of the medical profession the public and the authorities concerned can a gradual, nationwide raising of the general status of American spas be achieved and their desirable role as part of a national health system be fully developed.

2 East Eighty-Eighth Street.

Clinical Notes, Suggestions and New Instruments

RECURRENT PNEUMOCOCCIC MENINGITIS FOLLOWING SULFONAMIDE THERAPY

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Pneumococcic meningitis in the past has been an extremely fatal condition, a review of cases recorded before 1937 revealing only 185 cures in the entire literature.[1] This discouraging situation has been greatly modified by the use of chemotherapeutic agents. The wise use of sulfonamides early in pneumococcic pneumonia and other pneumococcic infections has prevented an undetermined number of meningeal complications, and the intensive use of these drugs has resulted in many apparent cures of well established pneumococcic meningitis. In addition it appears that occasionally the use of sulfonamide drugs may result in arrest of meningeal manifestations without cure, and that temporary remissions may be followed by relapses displaying typical signs of meningitis of greater or less severity. This relapsing form of pneumococcic meningitis may be regarded as a new clinical phenomenon which has thus far been reported in only 3 cases [2] and in each instance after more or less extensive use of sulfonamide drugs. Attention was focused on it by observation of the following case:

R. M., a man aged 55, Italian, a waiter, seen at the New York Hospital in 1943, had sustained a skull fracture fourteen years before, while still in Italy. There was bleeding from the ears, nose and mouth and unconsciousness for twenty-four hours, but after two weeks' hospitalization he was discharged as well, except for complete deafness in the left ear. He remained healthy for the next thirteen years. In November 1942 while on a hunting trip he was seized suddenly and without prodomes by a severe generalized headache, with vomiting and a temperature of 105 F. For four days he was irrational and was then taken to a local hospital, where some sulfonamide compound was administered. In ten days he felt entirely well and was able to go home. Ten days later, however, he developed another attack which he described as identical to the first. Again he was given a sulfonamide drug by his local physician and within three days the attack had subsided. For the next two months there were recurrent attacks at almost regular ten day intervals. Each relapse seemed to begin after sulfonamide therapy had been discontinued. At irregular intervals during this period he took daily doses of approximately 3 Gm. of a sulfonamide. In February 1943 a particularly severe attack which remained untreated for two days subsided promptly when a sulfonamide drug was given.

For the next four months he remained completely free of meningeal symptoms but on June 28 and again on July 25 there were minor attacks, which responded quickly to sulfonamide. He was first seen in our clinic in August 1943; at that time physical examination and an x-ray examination of the skull were entirely negative. An audiogram revealed complete loss of hearing in the left ear and an electroencephalogram revealed minor abnormalities.

On Sept. 1, 1943 he was suddenly seized with a severe headache accompanied by fever and vomiting, soon followed by

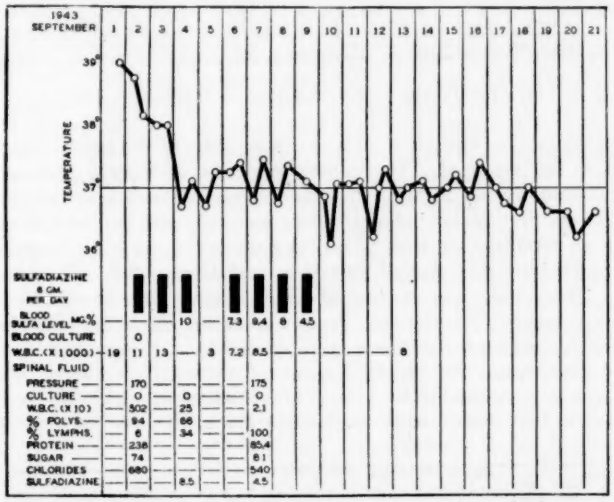

Fig. 1.—Hospital course, September 1943.

disorientation. This led to admission to the New York Hospital, where examination revealed a stiff neck with positive Kernig and Brudzinski signs, a temperature of 39 C. (102.2 F.), respirations of 40 per minute and a blood pressure of 150/75 (fig. 1). Blood count showed 10.5 Gm. of hemoglobin, 4.9 million red blood cells and 19,100 white cells with 18 per cent lymphocytes, 2 per cent monocytes, 62 per cent mature and 18 per cent immature polymorphonuclear leukocytes. The urine was clear, Mazzini test negative, blood urea nitrogen 13 mg. per hundred cubic centimeters. The spinal fluid was under pressure of 170 mm. and contained 5,020 white cells, of which 94 per cent were polymorphonuclear leukocytes and 6 per cent lymphocytes. No organisms were seen and none grew out on culture.

The patient was immediately placed on sulfadiazine 2.5 Gm. intravenously every four hours, with 1.8 Gm. of sodium bicarbonate by mouth. Blood levels of sulfadiazine were maintained between 7 and 10 mg. per hundred cubic centimeters and within two days the temperature had fallen to normal (fig. 1). A spinal tap done on the fourth hospital day revealed 252 white cells: 66 per cent polymorphonuclears and 34 per cent lymphocytes; again no organisms were recovered. Because the white blood cell count fell to 3,000 on the fifth hospital day, sulfadiazine was discontinued for one day but was resumed twenty-four hours later, when the count was 7,300. On the sixth hospital day the spinal fluid showed only 21 lymphocytes and the patient continued to feel well. Chemotherapy was continued until the ninth hospital day. At that time because an

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1. Hopkins, Henry; Hatch, L. C.; Schenck, H. P., and Pepper, D. S.: Recurrent Pneumococcic Meningitis Treated with Sulfonamides: Case Report, Ann. Int. Med. **20**: 333, 1944.

2. Hopkins, Hatch, Schenck and Pepper.[1] Elvidge and Roseman.[3] Craddock and Bowers.[5]

x-ray examination of the paranasal sinuses was interpreted as revealing a right frontal sinusitis with possible surrounding osteomyelitis, a right external frontal sinusotomy was performed. No pus was encountered, and only a few shreds of loose granulation tissue extending up from the ethmoidal region were seen. The left sinus could be inspected and was found

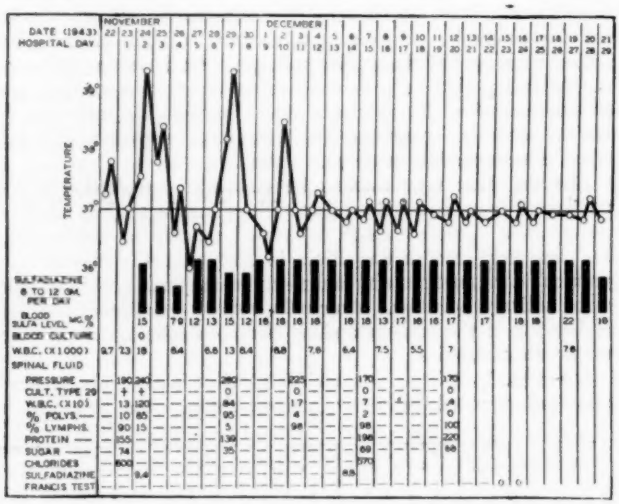

Fig. 2.—Hospital course, November and December 1943.

to be in good condition. The posterior plate of the frontal sinus was not removed. The patient made an uneventful recovery without further therapy. On the seventeenth and again on the twenty-first hospital day purulent material was irrigated from both maxillary antrums. This later proved on culture to contain Staphylococcus aureus hemolyticus and Hemophilus influenzae.

The patient was discharged on the twenty-first hospital day and reported to the ear, nose and throat clinic for further sinus irrigations on two more occasions. Nine days after discharge on Oct. 1, 1943 signs of meningitis recurred but promptly responded to 1 Gm. of sulfadiazine, which he took every four hours while at home. Each of three subsequent

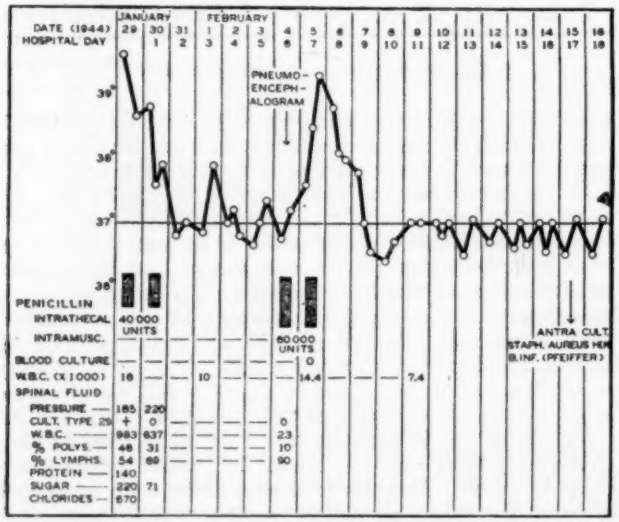

Fig. 3.—Hospital course, Jan. 29 to Feb. 16, 1944.

episodes of similar character were effectively controlled by self-administered sulfadiazine. A severe persistent headache following the last attack was the reason for readmission to the New York Hospital on Nov. 22, 1943 (fig. 2). Examination at that time revealed a temperature of 37.2 C. (98.9 F.). The patient exhibited a stiff neck and complained of a severe generalized headache but was completely oriented. The white blood cell count was 9,700 and lumbar puncture revealed a pressure of 190 mm. with 132 white blood cells, of which 10 per cent were polymorphonuclears and 90 per cent lymphocytes. Gram positive diplococci were seen on smear and later proved to be type 29 pneumococci. Sulfadiazine therapy was resumed, but on the second hospital day despite a sulfadiazine blood level of 14.5 mg. per hundred cubic centimeters the temperature rose abruptly to 39.4 C. (102.9 F.) and signs of meningitis again appeared. The white blood cell count was 18,000, and a spinal tap revealed 1,200 white blood cells, of which 85 per cent were polymorphonuclears and 15 per cent lymphocytes. The type 29 pneumococcus was again recovered from the spinal fluid. Sulfadiazine was continued vigorously with blood levels varying from 13 to 18 mg. per hundred cubic centimeters and by the fifth hospital day his temperature had fallen to 36 C. (96.8 F.) and the white blood cell count to 11,600. At this time the patient felt well, but two days later the temperature rose abruptly to 39.4 C. (102.9 F.) despite a sulfadiazine blood level of 15 mg. per hundred cubic centimeters but fell to normal within twenty-four hours. This experience was repeated on the tenth hospital day, and at this time 2 cc. of 0.5 per cent methy-

Fig. 4.—Mild dilatation of third and lateral ventricles without shift or displacement.

lene blue was injected through a lumbar spinal needle. Careful observation of the upper respiratory passages failed to reveal the dye, which might have indicated a communication from the subarachnoid space. Tests of the nasal secretions revealed no sugar, which might have indicated a cerebrospinal fluid rhinorrhea. For the next three weeks the course was asymptomatic with normal temperature and white blood cell count. On the twentieth hospital day the spinal fluid showed normal pressure and 4 lymphocytes; it was sterile on culture. The Francis test with type 29 SSS was negative. Cultures of washings from the nose and throat and sinuses contained no pneumococci.

The patient was finally discharged on the thirty-second hospital day, with directions to take 1 Gm. of sulfadiazine four times each day. He remained entirely well until three weeks after discharge, when the removal of two abscessed teeth apparently precipitated another attack of acute meningitis. At the time of the recurrence he was taking 3 Gm. of sulfadiazine per day. Increase of the dose to 4 Gm. was followed by prompt subsidence of symptoms. One week later, however, the patient was again admitted with a temperature of 39.4 C. (102.9 F.), a white blood cell count of 15,900 and the signs of severe meningeal involvement (fig. 3). A spinal tap revealed 983 white cells, of which 46 per cent were polymorphonuclears and 54 per cent lymphocytes. Gram positive diplococci were seen on smear, and these later proved on culture to be the type 29 pneumococcus.

It was decided to use penicillin, which was given in four doses each of 10,000 units intrathecally over the next forty-eight hours. His temperature and white blood cell count promptly fell to normal, his symptoms subsided and spinal fluid cell count fell to 23 cells with 90 per cent lymphocytes and 10 per cent polymorphonuclears. A pneumoencephalogram was performed on the sixth hospital day. Because of the possibility of a brain abscess, a focus of pus that might be disturbed by the procedure, the patient was given 60,000 units of penicillin intramuscularly over the twenty-four hours immediately before and after the procedure. A rise in temperature to 39.4 C. (102.9 F.) followed, but there was neither stiff neck nor Kernig sign. There was mild headache, a reaction anticipated with this type of procedure. With no further therapy the temperature returned to normal within thirty-six hours and remained so for the next nine days. The pneumoencephalogram revealed only mild dilatation of the third and lateral ventricles without shift or displacement (fig. 4). This was interpreted as a mild internal hydrocephalus due to the chronic arachnoiditis from the long standing recurrent meningitis. The patient was discharged on the eighteenth hospital day entirely well. X-ray films of the sinuses revealed a pansinusitis with a right frontal sinusitis and surrounding osteitis. Repeated cultures of the sinuses and upper respiratory passages failed to reveal any pneumococci. The patient recently had several teeth removed, for which he was given a short course of sulfadiazine prophylactically. No complications developed and there was no headache or stiff neck. Cultures of the tooth roots have produced no pneumococci to this time. One year after the last attack and the penicillin therapy the patient has remained well and entirely without symptoms of meningitis.

COMMENT

Although the clinical course of this illness could best be explained by the periodic discharge of infectious material into the subarachnoid space from some focus of a type 29 pneumococcus either as an abscess within the brain or meninges or in the sinuses and upper respiratory passages, such a focus was not demonstrable, and localizing neurologic signs never appeared. A review of the reported experiences with brain abscess in the literature failed to produce a case with a clinical course similar to ours. It seemed possible but unlikely that the skull fracture thirteen years before might have been significant, but no communication between the meninges and the respiratory tract through a definite fracture could be demonstrated.

In the case reported by Elvidge and Roseman [3] there was a compound fracture with its opening into the frontal and ethmoidal sinuses. This communication afforded opportunity for infection of the meninges by a type 23 pneumococcus soon after the fracture occurred. The subsequent course was marked by two recurrences with eventual cure after the use of specific antiserum and sulfapyridine. It is of interest that these observers were unable to recover the organism from the spinal fluid at the time of the first recurrence, though it was obtained at the time of all the other attacks. A case of recurrent meningitis due to a repeatedly recoverable type 34 pneumococcus was recently called to our attention from the Bellevue Service of Dr. William S. Tillett.[4] His patient had sustained a skull fracture two years before and, although no communication or defect was demonstrable, a lesion was detected in a lumbar vertebra by x-ray suggesting a bone abscess of osteomyelitis. After numerous recurrences, each following the cessation of sulfonamide therapy and each controlled by resuming sulfonamide, the patient was given penicillin intravenously. He experienced a remission, then relapsed and was given a combination of 120,000 units of penicillin and sulfadiazine and had no further attacks for several months. He finally disappeared and was not seen in the clinic again. Craddock and Bowers' case [5] was unassociated with any fracture or demonstrable focus and yielded a type 17 pneumococcus from the spinal fluid on the first admission, but at the time of the second attack forty-one days later the spinal fluid was sterile. The third attack occurred 129 days later and at that time a type 28 pneumococcus was recovered. With the fourth and final attack 136 days later the spinal fluid was again found to be sterile. In our own case we were able to obtain the type 29 pneumococcus on all except the first hospital admission. In a report by Hopkins, Hatch, Schenck and Pepper [1] a type 18 pneumococcus was recovered from the spinal fluid during each of three attacks of meningitis developing in the course of an acute respiratory infection with sinusitis. Eventual cure was associated with vigorous combined sulfonamide and specific serum therapy.

It cannot be proved that our patient had simple exacerbations of meningitis from a possible dormant focus, since the spinal fluid was not cultured and the patient was not observed with each recurrence. Indeed, on the first admission the spinal fluid yielded no organisms in the midst of a severe attack. However, the number of attacks, their repeated character and their probable relation to withdrawal from chemotherapy discourages the concept that the patient was experiencing many separate infections. A comparison of our experience with that from the literature reviewed indicates that our case has had a unique course both in the fact of its sixteen months duration and the undeterminable number of recurrences. The problem of this patient's immunity is therefore of great interest. Since there was no demonstrable antibody to the type 29 pneumococcus despite the patient's long role as a host, his recurrences probably cannot be presumed to represent variations in antibody strength. In addition, after continued sulfonamide therapy over a sixteen month period the organism remains sulfonamide sensitive by clinical as well as in vitro laboratory tests. The three recurrent attacks of meningitis in a setting of good blood levels of sulfadiazine at first suggested the possibility that the organism had become sulfonamide resistant.

It has been proposed recently by Mirick,[6] MacLeod [7] and others [8] that within single pneumococcus types there exists both sulfonamide sensitive and resistant subvarieties or that in the course of sulfonamide therapy of an otherwise sensitive type a resistant variety develops. Despite the opportunity for the breeding out or development of a resistant strain, such has not occurred. Since sulfadiazine is less effective in pneumococcic meningitis than in other pneumococcic infections, presumably because of its general ineffectiveness in the presence of pus, penicillin was considered a more desirable therapeutic agent at the time of the patient's last admission to the hospital. Although at that time we were unaware of Tillett's experience with penicillin in a similar case [4] there is some degree of parallelism in the final outcome in both his case and ours. In light of the recent experience of Waring and Smith,[9] in which the possible value of combined penicillin and sulfonamide therapy was demonstrated in 11 out of 12 cases of pneumococcic meningitis, it is of interest that the successful outcome of our case finally depended on the use of penicillin alone.

Perhaps too little time has elapsed since the penicillin treatment of the last attack in our patient to be certain that the attacks have been completely eliminated, although it is now one year, the longest free period the patient has experienced since onset.

SUMMARY

A man aged 55 who had sustained a skull fracture in 1929 had his first attack of meningitis thirteen years later. This responded to sulfonamide therapy but recurred when therapy was stopped. For the following sixteen months there were

3. Elvidge, A. R., and Roseman, E.: Recurrent Pneumococcic Meningitis Complicating Skull Fracture, Canad. M. A. J. **42**: 460, 1940.
4. Tillett, W. S.: Personal communication to the author.
5. Craddock, G. B., and Bowers, R. V.: Recurrent Pneumococcic Meningitis Treated with Sulfapyridine, J. A. M. A. **116**: 296 (Jan. 25) 1941.
6. Mirick, G. S.: Enzymatic Identification of p-Aminobenzoic Acid in Cultures of Pneumococcus and Its Relation to Sulfonamide Fastness, J. Clin. Investigation **21**: 628, 1942.
7. MacLeod, C. M., and Mirick, G. S.: Quantitative Determination of the Bacteriostatic Effect of the Sulfonamide Drugs on Pneumococci, J. Bact. **44**: 277, 1942.
8. Kirby, W. M. M., and Ranty, L. A.: Quantitative Studies of Sulfonamide Resistance, J. Exper. Med. **77**: 29, 1943. Schmidt, C. H., and Sesler, C. C.: Studies on Sulfonamide Resistant Organisms: III: On the Origin of Sulfonamide Resistant Pneumococci, J. Pharmacol. & Exper. Therap. **77**: 165, 1943.
9. Waring, A. J., Jr., and Smith, Margaret H. D.: Combined Penicillin and Sulfonamide Therapy in the Treatment of Pneumococcic Meningitis, J. A. M. A. **126**: 418 (Oct. 14) 1944.

numerous recurrences bearing relation to withdrawal from sulfonamide therapy. Three of the attacks came under our observation and in all but the first a type 29 pneumococcus was recovered from the spinal fluid. The last attack responded to penicillin therapy and the patient has been well for one year. No focus of infection was demonstrated in any of the structures of the head.

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FAILURE OF MAPHARSEN AS AN ADJUVANT TO ATABRINE IN THE TREATMENT OF RELAPSING TERTIAN MALARIA

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MEDICAL CORPS, ARMY OF THE UNITED STATES

During the summer and fall of 1943 a very large number of American soldiers stationed in the Far East developed malaria. During the period from the following January until the end of May the incidence of primary attacks of malaria dropped to an almost negligible figure, but patients continued to be admitted in considerable numbers with relapsing tertian malaria. Some of these men had been hospitalized and treated with various standard antimalarial courses five or more times within the preceding few months. Relapsing malaria was a serious menace to the efficiency of the men and their organizations and a burden on the medical installations. An ideal opportunity was presented to observe relapsing tertian malaria during a period in which the confusing factor of reinfection was practically negligible and to test the efficacy of a different form of therapy in this disease.

Intravenous arsenical therapy has been used for years in India and elsewhere for relief of the clinical symptoms of tertian malaria. It is known that the benefit, though dramatic, is temporary. Recrudescence of the clinical symptoms and reappearance of the parasites in the blood occur quickly and with great regularity. These observations were confirmed in this hospital in a small group of patients treated with mapharsen or neoarsphenamine. Furthermore, we observed 3 instances in which tertian malaria developed repeatedly in patients being treated with mapharsen for syphilis. With this evidence it appeared unlikely that mapharsen or neoarsphenamine, either in a single dose or in repeated doses of the magnitude employed in the treatment of syphilis, would cure tertian malaria. There remained the possibility that it might cure relapsing tertian malaria when used in combination with atabrine.

METHOD

From Jan. 10, 1944 to March 25, 1944 all patients admitted to a general hospital with clinical malaria in whom Plasmodium vivax was demonstrated were placed in one or the other of two groups. Those admitted to certain of the medical wards were treated with atabrine alone; those admitted to the remaining wards were treated with atabrine and mapharsen. Assignment to the respective wards was completely unselected. The rarely occurring primary cases and the personnel of transient organizations, in whom it was predicted that follow-up would be difficult or impossible, were not included in the groups. In a few instances it was later necessary to drop patients from the groups because of transfers to other areas. The 176 patients of the two groups were followed until a relapse occurred or until May 30, 1944, when all patients in whom no relapse had occurred were contacted and, where possible, smears were obtained.

There were 109 cases in the atabrine group. Each was treated with 0.2 Gm. of atabrine every six hours for five doses, then 0.1 Gm. three times daily for six more days, a total of 2.8 Gm. in eight days, as recommended by the Surgeon General (Circular Letter No. 153, Aug. 19, 1943).

The 67 cases in the atabrine-mapharsen group were treated with atabrine as described. In addition a total of 0.160 Gm. of mapharsen was given intravenously in three doses of 0.04, 0.06 and 0.06 Gm. on the third, fifth and eighth days of atabrine therapy.

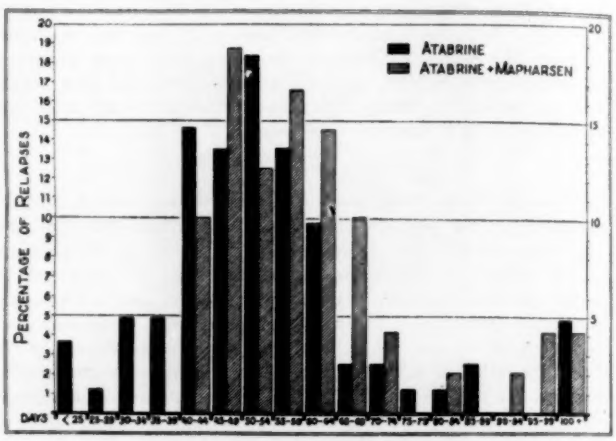
In this investigation mapharsen was administered under the direction of Clarence S. Livingood, Major, M. C., Chief of Section, Dermatology and Syphilology.

RESULTS

Clinical malaria relapses, with the diagnoses confirmed by positive smears, occurred in 81 patients, or 74.3 per cent, of the atabrine group, and in 48 patients, or 71.6 per cent, of the atabrine-mapharsen group. The figures would be somewhat higher in both groups with the addition of asymptomatic patients with positive smears at the end of the follow-up period.

From the time of admission for treatment of the malaria attack included in this series, all patients were followed for at least sixty-five days, some for as long as one hundred and forty days. Approximately two thirds of the cases were followed for more than ninety days unless a relapse had already been observed. A longer period of observation would have been desired but was not possible because at the time of conclusion of the study new malaria infections were beginning to rise to significant levels, and by prolonging the period of observation relapse would have become confused with reinfection.

The accompanying chart illustrates the time interval from admission to the hospital for treatment to subsequent readmission for each group. Very early relapses, before the fortieth day, developed only in the atabrine group. A sharp rise then occurred, peaking in the fifty to sixty-five day period, then falling off abruptly by the seventieth day.[1] Relapses, in general, occurred slightly earlier in the atabrine group (median fifty-one days) than in the atabrine-mapharsen group (median fifty-seven days).



Relapsing tertian malaria: time interval from clinical onset of relapse to onset of subsequent rerelapse in 81 patients treated with atabrine 2.8 Gm. and in 48 patients treated with atabrine 2.8 Gm. plus mapharsen 0.16 Gm.

No objective differences in the character of the acute attack were noted. Those patients who received the mapharsen during the early period of guarded optimism noted what might be described as "tonic" effects. Later, when neither the patient nor the physician had confidence in its curative value, these "tonic" effects were no longer observed.

SUMMARY

1. Relapsing tertian malaria was observed in a group of 176 patients during a period in which new malarial infection did not occur in significant incidence.

2. Of these, 109 were treated with atabrine, 2.8 Gm. in eight days; 74.3 per cent of these again developed clinical malaria during the sixty-five to one hundred and forty day period of observation.

3. The other 67 were treated with atabrine as described, plus mapharsen 0.160 Gm. in three doses; 71.6 per cent of these relapsed.

4. Very early relapses occurred more frequently in the atabrine group, and the mean time of relapse interval was slightly shorter than in the atabrine-mapharsen group.

5. It is concluded that mapharsen in the dosage administered is of no practical value as an adjuvant to atabrine in the treatment of relapsing tertian malaria.

1. As 100 per cent of the cases were followed for sixty-five days or longer, and 93 per cent for seventy days, a longer follow-up should not have greatly influenced the composition of the figure.

Council on Foods and Nutrition

SPECIAL ARTICLE

This is the first of a series of articles discussing the significance of protein nutrition in health and disease. This material was prepared by the authors at the request of the Council and has been authorized for publication.

GEORGE K. ANDERSON, M.D., *Secretary.*

PROTEIN: ITS ROLE IN HUMAN NUTRITION

INTRODUCTION

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AND
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Good nutrition for an individual implies that he receive and utilize a suitable metabolic mixture of all substances necessary for health. This can be obtained only from food selected, processed, prepared, consumed, absorbed and utilized so that it furnishes in optimal amounts the individual's essential nutrients. Such a diet must contain protein, fat, carbohydrate, certain minerals and vitamins, and water in optimum amounts. The optimum allowance which is recommended for each nutrient should be much greater than the minimum requirement of that nutrient. That is, provision must be made not only for actual requirements but also for variations from the "normal" both in health and in disease, for the accumulation of some "reserves" and for differences in actual food intake due to food habits, individual tastes and variations in economic status.

Lewis [1] has recently reviewed much of our knowledge of proteins. They are the principal nitrogenous constituents of all plant and animal tissues. They are essential constituents of both the protoplasm and the nucleus of cells and are the main organic constituents of the muscle and glandular tissues of the body. They are important in the osmotic relations between intracellular and extracellular fluid. The individual structure and function of the body tissues depend to a large extent on the presence of specific proteins, such as the enzymes, hormones and antibodies.

DIGESTION, ABSORPTION AND METABOLISM OF PROTEIN

Chemically, proteins are large complex organic molecules, consisting of amino acids linked together. In the process of digestion these large molecules are broken down into simpler chemical units (polypeptides) and ultimately into the component amino acids, which are still smaller molecules. The amino acids are then absorbed and enter the portal and general circulation. Indeed, after a meal rich in protein there is a temporary rise in the blood amino acid concentration. Depending on the state of the individual's nutrition, a part of the absorbed amino acids is used for replacing and building body and plasma protein, and the remainder is deaminated, chiefly by the liver, with the formation of carbohydrate and the production of nonprotein nitrogenous products, which are excreted in the urine. Therefore the urine nitrogen represents the sum of that derived from body protein breakdown (endogenous) and that derived from the food protein used for energy and not for building body tissues (exogenous). About half of the amino acid molecules after deaminization are changed to carbohydrates.

Plasma proteins are of at least two distinct varieties, the albumins and the globulins, separated chiefly by the former's greater solubility in water. Recently the electrophoretic method of Tiselius [2] has served to characterize these two fractions more clearly and has further enabled the separation of several globulin fractions. The globulin fractions are fibrinogen and the alpha, beta and gamma globulins. Each of these fractions has certain characteristic physical properties and is associated usually with specific physiologic functions. For example, circulating antibodies are found chiefly in the gamma globulin fraction, whereas prothrombin, essential for the clotting of blood, is found chiefly in the beta globulin fraction.[3]

The globulin fractions exert less than one fifth of the osmotic effect of albumin, and it is not usual for the globulin fractions to be changed significantly with changes in protein nutrition. The albumin is the plasma protein which first becomes reduced in protein deficiency. Likewise in plasma protein loss, such as into exudates from burn surfaces, or into the urine as in nephrosis, it is the albumin which is most affected. Thus severe depletion of body proteins may eventually be reflected in the blood by a fall in the plasma albumin concentration. However, it should be emphasized that a measurable fall in plasma albumin concentration occurs only after a pronounced loss in body proteins. When a low blood albumin concentration develops, body protein depletion must be suspected. The critical level of plasma albumin below which edema usually occurs is given by Bruckman and Peters [4] as 3 per cent. Certain situations, as for example anemia, may modify this critical level for it is well known that edema may occur with plasma albumin levels greater than 3 per cent.

The plasma proteins are largely manufactured in the liver,[5] especially fibrinogen and albumin.[6] The globulins may be synthesized, at least in part, by the reticuloendothelial system.[7]

NITROGEN BALANCE

An individual is considered to be in nitrogen equilibrium when the nitrogen intake is equal to the nitrogen excretion over a period of several days. Nitrogen intake is derived from ingested food, though recently proteins and their hydrolysates have been given parenterally. Nitrogen loss is chiefly in the urine as nonprotein nitrogen. The loss of nitrogen in the stool of a healthy adult is relatively constant, even with ordinary changes in diet. However, the amount of nitrogen in the stool may increase considerably following the ingestion of certain proteins which are not well utilized. In cases of poor intestinal absorption

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1. Lewis, H. B., in Handbook of Nutrition, Chicago, American Medical Association, 1943, chapter 2.

2. Tiselius, A.: Electrophoresis of Serum Globulin: Electrophoretic Analysis of Normal and Immune Serum, Biochem. J. **31**: 1464-1477 (Sept.) 1937.

3. Cohn, E. J.; Oncley, J. L.; Strong, L. F.; Hughes, W. L., Jr., and Armstrong, S. H., Jr.: The Characterization of the Protein Fractions of Human Plasma, J. Clin. Investigation **23**: 417-432 (July) 1944.

4. Bruckman, F. S., and Peters, J. P.: The Plasma in Relation to Blood Hydration: V. Serum Protein and Malnutritional and Cachectic Edema, J. Clin. Investigation **8**: 591-595 (June) 1930.

5. Madden, S. C., and Whipple, G. H.: Plasma Proteins: Their Course, Production and Utilization, Physiol. Rev. **20**: 194-217 (April) 1940.

6. McMaster, P. D., and Drury, D. R.: The Source of Fibrinogen, Proc. Soc. Exper. Biol. & Med. **26**: 490-491 (March) 1929.

7. Sabin, F. R.: Cellular Reactions to a Dye Protein with a Concept of the Mechanism of Antibody Formation, J. Exper. Med. **70**: 67-82 (July) 1939.

and when diarrhea is present, an increase in stool nitrogen may also occur. Even the ingestion of large amounts of nonprotein roughage may increase the loss of nitrogen into the stools. Loss of nitrogenous products from wounds and from other suppurating lesions must be taken into consideration in balance studies. A sudden clearing of an increased nonprotein nitrogen of the blood into the urine may further disturb equilibrium conditions.

Negative nitrogen balance exists when excretion of nitrogen is greater than the amount consumed. In the absence of extensive loss of protein, or incomplete absorption, a negative nitrogen balance means that increased catabolism of protein exists or ingestion has been inadequate.

A positive nitrogen balance, that is, a greater intake than excretion of nitrogen, indicates that utilization of nitrogen for building body tissues is occurring. Such a condition is found during active growth and after the existence of body protein depletion, when adequate diets are furnished. Individuals consuming low protein diets may remain in nitrogen equilibrium particularly if the amount of carbohydrate and fat in the food is sufficient to meet energy requirements. Even though sufficient to keep an individual in nitrogen equilibrium, a low protein intake cannot be considered optimal, or even safe for any length of time, for it does not furnish any elasticity for increased demands in the case of intercurrent illness or for small inadvertent changes in the diet. Furthermore, other nutrients such as certain minerals and vitamins of the B complex which are found with protein foods may also be consumed in amounts below the optimum. Thus nitrogen equilibrium per se does not necessarily represent desirable protein intake.

The treatment of body protein depletion, with or without hypoalbuminuria, depends on increasing the protein intake until the patient is in positive nitrogen balance and continuing such diets until the protein deficit is made up. Generally the more positive the nitrogen balance the shorter the time required for making up the deficit completely. In severe depletion of protein a long time may be required to make up the deficit. Albumin is regenerated at a rate of approximately 25 Gm. per day or more.[8]

Elman and his co-workers[9] have calculated that a reduction of 1 Gm. in the total circulating plasma albumin indicates a loss of 30 Gm. of body protein. For example, a 70 kilogram man with a plasma volume of 3,500 cc. and with 4.0 Gm. of albumin per hundred cubic centimeters would have 140 Gm. of total plasma albumin. A reduction in the plasma albumin concentration from 4 to 3.5 Gm. per hundred cubic centimeters would mean a reduction in the total plasma albumin from 140 to 123 Gm., or a loss of 17 Gm. If each gram represents, as Elman suggests, a loss of 30 Gm. of body protein, such a reduction of albumin from 4.0 to 3.5 Gm. per hundred cubic centimeters of plasma would represent a loss from the body of at least 510 Gm. of albumin. Return of the plasma albumin concentration to normal may occur before and often long before the body deficit is made up but is probably only temporary, and a prompt fall would probably occur if the protein intake should again be insufficient. Thus the return to a normal plasma albumin indicates that the treatment is effective but not necessarily complete and that the high protein food intake must be maintained until normal weight and strength are regained.

8. Peters, J. P., and Van Slyke, D. D.: Quantitative Clinical Chemistry: Interpretations, Baltimore, Williams & Wilkins Company, 1932, vol. 1, p. 655.

9. Sachar, L. A.; Horvitz, A., and Elman, R.: Studies on Hypoalbuminemia Produced by Protein Deficient Diets, J. Exper. Med. **75**: 453-459 (April) 1942.

PROTEIN AND AMINO ACID REQUIREMENTS

Some twenty-two nutritionally important amino acids have been identified. Of these ten have been shown to be essential for growth in the rat. Recent research has shown that at least eight are necessary for the maintenance of nitrogen equilibrium in young human adults for limited periods.[10] The term "essential" as applied to an amino acid means that body tissues cannot make that amino acid in sufficient amount to meet physiologic requirements, and therefore it must be obtained ready made from food. It also means that the amino acid in question is necessary for some essential physiologic process. The rate of growth, the maintenance of nitrogen equilibrium and the rate of regeneration of the plasma protein of an animal are the criteria that have been generally used to measure the essentiality of an amino acid. However, other methods of measuring the essential value of a given amino acid, based on specific physiologic function, may show a greater need for such amino acids over and above these requirements. Practically nothing is known of the quantitative requirements of each of the essential amino acids in man.

The biologic or nutritional value of proteins is dependent on their content of amino acids, particularly those that are essential. Generally speaking, proteins of animal origin which include not only those in meat, both from muscle and glandular tissue, but also those from milk, eggs, fowl and fish, are of higher nutritional value than the commonly used vegetable proteins, since they are "complete." That is, they contain all the essential amino acids. However, vegetable proteins supply many of the essential amino acids and in properly selected diets may supplement one another and result in the ingestion of adequate protein. Rats and dogs have been maintained in good health on diets in which the only source of protein has been of vegetable origin (wheat germ and corn germ).[11] Several studies with adult human beings have shown that nitrogen equilibrium and apparent good health may be maintained for relatively limited periods on low protein diets (0.5 Gm. per kilogram of body weight) when only about one tenth of the total protein intake is of animal origin.[12] The old custom of recommending that approximately half of our protein intake be of animal origin is not necessarily a good one. Man generally receives his protein from both animal and vegetable sources, the former from the flesh of various animals, particularly the cow, pig and sheep, and from milk, cheese and eggs, and the latter from the cereal grains, wheat, corn, rye and the legumes, such as peas and beans.[1] Variety in the choice of foods is good nutritional practice, and this is particularly true of protein foods because the amino acids of one protein may supplement deficiencies of another protein source and thereby furnish a sufficient quantity of the essential amino acids.

10. Rose, W. C.; Haines, W. J.; Johnson, J. E., and Warner, D. T.: Further Experiments on the Role of Amino Acids in Human Nutrition, J. Biol. Chem. **148**: 457-458 (May) 1943.

11. Hove, E. L., and Harrel, C. G.: Read before the American Association of Cereal Chemists during May 1943. Stare, F. J., and Hegsted, D. M.: The Nutritive Value of Wheat Germ, Corn Germ and Oat Proteins, Federation Proc. **3**: 120-123 (June) 1944.

12. Sherman, H. C.: The Chemistry of Foods and Nutrition, New York, Macmillan Company, 1941.

Before the rationing of food in the present war it was not uncommon for persons to consume 150 Gm. of protein chiefly of animal origin per day. Eskimos and explorers of the arctic and antarctic regions consume large amounts of animal protein. There are many persons who state that subjectively they feel better on diets furnishing a high proportion of animal proteins. Soldiers and those doing heavy physical labor generally prefer large quantities of meat, partly because of its satiety value and also because meat furnishes fat and hence contributes effectively to energy. Meat also supplies many other essential nutrients. However, it is well established that the body requirements for protein per se are not increased by activity, provided sufficient carbohydrate and fat are fed so that the protein is not required for energy production.

Protein used for energy yields approximately the same number of calories per gram as does carbohydrate. However, if enough calories from nonprotein sources are not provided in the diet, amino acids will be used for energy and will not be available for the important anabolic reactions which require them; that is, the building of body proteins.

The amount of protein in diets in this country, as well as relative proportions of animal and vegetable protein, varies considerably. For some time physicians following Sherman's careful work [13] have recommended approximately 1 Gm. of protein per kilogram of body weight for optimum nutrition in the normal adult, with increases of half to twice as much in pregnancy, lactation, growth and even more in certain pathologic states, such as extensive burns and various diseases in which there is loss of protein or poor synthesis of plasma protein. It is well known that minimum protein requirements for the normal adult are much less, in fact probably not more than half of the recommended intake of 1 Gm. per kilogram of body weight. Thus Youmans and his co-workers [14] in studying the nutrition of a rural population in Tennessee found that many of their subjects had a daily protein intake far below 1 Gm. per kilogram of body weight. Three per cent had plasma protein levels below 6 Gm. per hundred cubic centimeters, and 9 per cent had plasma albumin levels of less than 4 Gm. per hundred cubic centimeters. That there is not more evidence of prolonged protein deficit in these people, as revealed by reduced plasma protein levels, is surprising when one considers that the diet was low in calories as well as in protein. It seems reasonable to conclude from this and similar studies that a comparable population may exist on a very low protein and caloric intake for some time without the frequent development of hypoproteinemia. In spite of the lack of hypoproteinemia, many of these persons may have had a gradually increasing body protein deficit.

From the practical point of view it is well to recall that most foods rich in protein furnish nutrients other than protein. They are generally among the best sources of the vitamin B complex as well as good sources of minerals and, frequently, of fat. Hence diets deficient in protein are likely to be deficient in some of these other nutrients as well. The population studied by Youmans may, for example, have some deficits in other nutrients, generally furnished by the protein rich foods, and although existing in apparent good health may be in a vulnerable position in the case of increased metabolic demands. In this connection the studies of Mann [15] on 200 school boys should be referred to. Two groups were studied, both on identical and apparently adequate diets. To the boys of one group a pint of milk per day was given. During the four year period of the study the groups receiving milk gained more weight, were more fit and had fewer illnesses than the control group. Therefore a diet may appear to be nutritionally adequate but still not be optimal. One should think, as Sherman [16] suggests, of the "nutritional improvability of what some consider normal."

It is evident that protein has many necessary functions in health and in the fields of preventive and curative medicine. Many of these will be discussed in some detail in future articles to appear in this series; only brief mention will be made here of the normal protein requirements during pregnancy, growth and old age and of the increased demands in certain diseases.

PREGNANCY

The old adage that the pregnant woman must "eat for two" may not be true quantitatively but does express the increased nutritional demands of the individual during pregnancy. There is evidence that the mother stores protein in excess of that required for the fetus. The actual protein requirement during pregnancy cannot be definitely stated, but 10 to 20 Gm. of additional protein per day have been suggested as the increased requirement,[17] and on the basis of this and other available data the Food and Nutrition Board of the National Research Council [18] has recommended that the mother's diet should contain 85 Gm. of protein daily during the latter half of pregnancy. The studies of Burke, Harding and Stuart [19] on 216 mothers and their infants have shown that only 10 per cent of the mothers followed during pregnancy had a diet containing 85 Gm. of protein or more during the last two trimesters of pregnancy. Fifty-two per cent consumed from 55 to 84 Gm. daily, 24 per cent between 45 and 54 Gm. while 14 per cent consumed as little as 45 Gm. or less of protein daily. Thus 90 per cent of the mothers consumed below the suggested optimal allowance of protein. The weight, length and general condition of the infants at birth bore a direct relationship to the grams of protein consumed daily by the mother. It would appear that there is a direct relation between the amount of protein in a mother's diet and the start in life she gives to her infant. This relationship is of such magnitude that it can be demonstrated with each 10 gram protein difference in the antepartum diet. It would appear from this study "that less than 75 Gm. of protein daily during the latter part of pregnancy results in an infant who will tend to be short, light in weight and most likely to receive a low pediatric rating in other respects." It is probable that the low protein diet taken by these mothers was also deficient in other

13. Sherman, H. C.; Gillet, L. H., and Osterberg, E.: The Protein Requirement of Maintenance in Man and the Nutritive Efficiency of Bread Protein, J. Biol. Chem. **41**: 97-109 (Jan.) 1920.
14. Youmans, J. B.; Ratton, E. W.; Sutton, W. R.; Kern, R., and Steinkamp, R.: Surveys of the Nutrition of Populations: II. The Protein Nutrition of a Rural Population in Middle Tennessee, Am. J. Pub. Health **33**: 955-964 (Aug.) 1943.
15. Mann, H. C. C.: Diets for Boys During School Age, Medical Research Council, Special Report Series, number 105, London, His Majesty's Stationery Office, 1926.
16. Sherman, H. C.: The Science of Nutrition, New York, Columbia University Press, 1943, chapter 15.
17. Wilson, K. M.: Nitrogen Metabolism During Pregnancy, Bull. Johns Hopkins Hosp. **27**: 121-129, 1916.
18. Food and Nutrition Board of the National Research Council, Reprint and Circular Series, number 115, January 1943.
19. Burke, B. S.; Harding, V. V., and Stuart, H. C.: Nutrition Studies During Pregnancy: IV. Relation of Protein Content of Mother's Diet During Pregnancy to Birth Length, Birth Weight and Condition of Infant at Birth, J. Pediat. **23**: 506-515 (Nov.) 1943.

essential nutrients, especially certain minerals and vitamins of the B complex, so that in reality a multiple deficiency may have existed.

During lactation there is an even greater demand for protein. This is not surprising, for not only must the mother maintain her own metabolic processes and make up any deficit of protein that may have occurred in pregnancy, but she must also supply the infant with milk. If a mother during the fourth week post partum supplies an average of 750 cc. of milk daily, containing 1.5 Gm. of protein per hundred cubic centimeters, she would be losing 11 Gm. of protein by milk production. This would require more than 11 Gm. of additional protein in the diet, for it is known that the conversion is not complete.

GROWTH

In infancy and childhood the protein requirements are relatively much higher in relation to body weight than in the normal adult. This is clear when one considers that for normal growth protein is retained for tissue synthesis, and a strongly positive nitrogen balance must be maintained. The recommended allowances for infants and young children have been given at between 3 and 4 Gm. of protein per kilogram of body weight daily.[20] Here again the optimal allowance is probably in excess of the actual requirement but may be necessary to keep the child in the maximum positive nitrogen balance that some authors have recommended.[21] Moreover, as the child grows older and eats a more varied diet, the biologic value of the proteins may decrease somewhat, requiring a higher total protein intake. During adolescence there is again an increased demand for protein as well as other nutrients, and it is well for adolescents to consume goodly amounts of milk, meat, eggs and other protein rich foods.

OLD AGE

The protein requirements during old age are not known but may be somewhat less than the requirements of the normal adult.[22] However, in old age there are many factors which may act to diminish the protein intake. Physiologic changes, such as defective or absent teeth, achlorhydria and chronic constipation, may lead to anorexia and a low protein intake. In fact, old persons often develop a distaste for meat. Therefore, in spite of the lowered metabolic requirements, great care should be exercised to make sure that the actual protein intake does not fall below an amount commensurate with health.

DISEASE

During most illnesses there is a disturbance in protein metabolism. In acute infections an increased catabolism of protein is found and may be related more to "intoxication" than to the increased temperature itself.[23] Increased catabolism of protein also occurs in a variety of other illnesses not usually considered as representing an increased protein demand, for example diabetic acidosis, in which the loss of protein may be very great. The physician is often confronted with patients suffering from protein depletion, especially those with lesions of the gastrointestinal tract. Minot[24] has said "Defective nutrition can arise when the diet seems adequate because of some disturbance in the state of the gastrointestinal tract and its contents which may act adversely so as to 'condition' or enhance a deficiency of nutritional factors within the body proper." Protein deficiency of itself may lead in time to actual edema of the intestinal mucosa, resulting in poor intestinal absorption, thus completing the vicious cycle.[25]

It has recently been shown[26] that patients with severe thermal burns excrete in the urine large amounts of nonprotein nitrogenous products soon after the injury and also lose from the burn surface excessive amounts of protein and its breakdown products for long periods thereafter. To prevent a protein deficit, as evidenced by progressive hypoproteinemia, poor granulation tissue and pronounced loss of weight, a very large protein intake is required by persons who are burned.[27]

In nephrosis the body protein deficit is often great because of the fact that such large amounts of protein are lost in the urine that plasma albumin concentrations of less than 1 Gm. per hundred cubic centimeters are not uncommon and account for the massive edema often seen in this disease. With a severe protein deficiency already present in patients with this disease, and with continued protein loss occurring, it may take weeks or months of maintaining a strongly positive nitrogen balance before the deficit is sufficiently made up to the point where a rise in plasma albumin occurs and edema disappears. If the proteinuria is greater in amount than the maximum daily plasma albumin regeneration, as does sometimes occur, it becomes almost impossible to make up the protein deficit.

The nutritional aspects of convalescent care have been discussed recently by Peters.[28] In acute febrile diseases and after serious injuries, protein catabolism is increased and urinary nitrogen excretion may be several times the normal.[29] It is important to administer as early as possible in convalescence sufficient protein to replace such loss, and also sufficient carbohydrate and fat to provide for the caloric requirements of such individuals so that the protein provided can be utilized for rebuilding of tissue and not for energy production. In this way a body protein deficit can be largely avoided and convalescence perhaps shortened and attended by fewer complications.

Severe restriction of protein and of calories in the diet may lead to use of body protein for fuel. If prolonged, a large body protein deficit may occur with hypoproteinemia and edema. Often this condition has been called "war edema" or "famine edema." During the first world war, food, particularly protein foodstuffs, was so restricted in some European countries that the population reached the starvation level and edema became common. Protein is known to be restricted in the occupied countries in the present war, and reports of such clinical protein deficiencies have

20. Holt, L. E., and Fales, H. L.: The Food Requirement of Children: II. Protein Requirement, Am. J. Dis. Child. **22**: 371-380 (Oct.) 1921.
21. Mitchell, H. H.: Bulletin 55, National Research Council, 1926, vol. 11, pt. 1, p. 21.
22. Jeghers, H.: Nutrition, New England J. Med. **225**: 687-697 (Oct. 30) 1941.
23. Graham, C., and Poulton, E. P.: The Influence of High Temperature on Protein Metabolism with Reference to Fever, Quart. J. Med. **6**: 82-124, 1912.
24. Minot, G. R.: Nutritional Deficiency, Ann. Int. Med. **12**: 429-442 (Oct.) 1938.
25. Jones, C. M.: Protein Deficiency, New England J. Med. **215**: 1152-1155 (Dec. 17) 1936.
26. Taylor, F. H. L.; Levenson, S. M.; Davidson, C. S., and Adams, M. A.: Abnormal Nitrogen Metabolism in Patients with Thermal Burns, New England J. Med. **229**: 855-859 (Dec. 2) 1943. Hirschfeld, J. W.; Williams, H. H.; Abbott, W. F.; Heller, C. G., and Preling, M. A.: Significance of the Nitrogen Loss in the Exudate from Surface Burns, Surgery **15**: 766-773 (May) 1944.
27. Levenson, S. M.; Davidson, C. S.; Lund, C. C., and Taylor, F. H. L.: The Nutrition of Patients with Thermal Burns, to be published.
28. Peters, J. P.: Problems of Nitrogen Metabolism, Federation Proc. **3**: 197-201 (Sept.) 1944.
29. Shaffer, P. A., and Coleman, W.: Protein Metabolism in Typhoid Fever, Arch. Int. Med. **4**: 538-600 (Dec.) 1909. Howard, J. E.: Studies of Protein Metabolism in Fractures, Bull. Johns Hopkins Hosp. **74**: 313-314 (May) 1944.

already appeared.[30] The problem of supplying food to these countries as they are liberated is very great. Not only must enough food be available to meet the usual optimal daily requirements, but a body protein deficit of large proportions, produced by several years of semistarvation, must be made up.

METHOD OF SUPPLYING PROTEIN

Food by mouth is the most effective route for the administration of protein. However, for some patients with considerable body protein depletion or with increased nitrogen catabolism, especially if associated with anorexia or disturbance of the gastrointestinal tract, it may not be possible to supply sufficient protein by mouth, and other routes of administration must be used. Concentrated protein preparations may be given by stomach tube, but in certain instances this procedure may lead to distention and diarrhea.

Protein has been given intravenously in the form of human plasma, human albumin, gelatin, various hydrolysates of casein and whole blood. Intravenously administered protein, although often a useful supplement to that given orally, is usually difficult to give in amounts sufficient to meet the daily requirement. The use of plasma or a hydrolysate of protein is not practical unless given in sufficient quantity to contribute effectively to the protein requirements. Ordinarily the concentration of protein in plasma is so low (5 to 6 Gm. per hundred cubic centimeters) that large quantities of plasma are required to make up for more than a slight body protein deficit. Although available now only in limited amounts, plasma albumin is a useful substance for supplying protein intravenously. It has been prepared in concentrated salt free solutions (25 per cent) and may be given with benefit to patients with a protein deficit.[31] Under such a regimen it must be kept in mind that a single protein is being administered. Proteins prepared for intravenous use are deficient in the vitamin B complex, minerals and fat, which protein foods supply. There is some evidence that plasma proteins and especially plasma albumin may not adequately serve as nutritional protein if they are used as the only source of protein. Recently in rat growth experiments the proteins of human plasma have been found to be deficient in isoleucine,[32] and human albumin in isoleucine and tryptophan.[33] The amino acid requirements for man may differ both qualitatively and quantitatively from those of the rat, so that direct application of the results on animals to man cannot be made.

Gelatin has been prepared and used as a blood substitute in surgical shock.[34] However satisfactory it may be in this regard, gelatin is lacking in many of the essential amino acids, so that it is quite unsatisfactory as a source of protein for nutritional purposes.[35]

In the last few years hydrolysates of certain proteins have been used intravenously and orally to supply protein. Casein has been the protein most used, as it can be obtained easily in relatively pure form and has high biologic value. The protein is hydrolyzed either by acid or by proteolytic enzymes, and when augmented by such amino acids as may be lost in the preparation it is readily utilized. If sufficient amounts of such hydrolysates are administered, nitrogen balance may be maintained.[36] However, the continued intravenous use of such preparations may result in venous thrombosis at and near the site of injection, making the administration difficult.

Whole blood transfusion is probably not of significant value in supplying protein. While whole blood contains sufficient total protein to be of nutritional interest, it is believed that its principal protein, hemoglobin, cannot in any circumstances be used as a nutritional protein. Whipple, studying this problem on dogs rendered hypoproteinemic by repeated plasmapheresis, has recently stated that "hemoglobin in its production may draw on the plasma protein but hemoglobin stands apart in the protein economy and does not contribute freely to the protein pool." [37]

25 Shattuck Street, Boston 15.

30. Zimmer, R.; Weill, J., and Dubois, M.: The Nutritional Situation in the Camps of the Unoccupied Zone in France in 1941 and 1942 and Its Consequences, New England J. Med. **230:** 303-314 (March 16) 1944.
31. Janeway, C. E.; Gibson, S. T.; Woodruff, L. M.; Heyl, J. T.; Bailey, C. T., and Newhouser, L. R.: Chemical, Clinical and Immunological Studies on the Products of Human Plasma Fractionation: VII. Concentrated Human Serum Albumin, J. Clin. Investigation **23:** 465-490 (July) 1944.
32. Hegsted, D. M.; McKibbin, J. M., and Stare, F. J.: The Nutrition Value of Human Plasma for the Rat, J. Clin. Investigation **23:** 705-707 (Sept.) 1944.
33. Hegsted, D. M., and Stare, F. J.: Unpublished observations.
34. Parkins, W. M.; Koop, C. E.; Riegel, C.; Vars, H. M., and Lockwood, J. S.: Gelatin as a Plasma Substitute, with Particular Reference to Experimental Hemorrhage and Burn Shock, Ann. Surg. **118:** 193-214 (Aug.) 1943. Evaluation of Studies on Gelatin Preparations for Intravenous Use, Special Report of National Research Council, J. A. M. A. **125:** 284 (May 27) 1944.
35. Brunschwig, A.; Scott, V. B.; Corbin, N., and Moe, R.: Observations on the Intravenous Injection of Gelatin for Nutritional Purposes, Proc. Soc. Exper. Biol. & Med. **52:** 46-48 (Jan.) 1943. Robscheit-Robbins, Frieda S.; Miller, L. L., and Whipple, G. H.: Gelatin—Its Usefulness and Toxicity, J. Exper. Med. **80:** 145-164 (Aug.) 1944.
36. Altschuler, S. S.; Sahyun, M.; Schneider, H., and Satriano, D.: Clinical Use of Amino Acids for Maintenance of Nitrogen Equilibrium, J. A. M. A. **121:** 163-167 (Jan. 16) 1943. Elman, R.: Maintenance of Nitrogen Balance by the Intravenous Administration of Plasma Proteins and Protein Hydrolysates, Physiol. Rev. **24:** 372-389 (July) 1944.
37. Whipple, G. H.: Hemoglobin and Plasma Proteins: Their Production, Utilization and Interrelation, Am. J. M. Sc. **203:** 477-489 (April) 1942.

ACCEPTED FOODS

The following additional foods have been accepted as conforming to the Rules of the Council on Foods and Nutrition of the American Medical Association for admission to Accepted Foods.

GEORGE K. ANDERSON, M.D., *Secretary.*

PREPARATIONS USED IN THE FEEDING OF INFANTS (*See* Accepted Foods, 1939, p. 156)

Quaker Oats Company, Chicago.

BABY QUAKER INSTANT STRAINED OATMEAL consists of ground rolled oats, dicalcium phosphate, salt, dried brewers' yeast and sodium iron pyrophosphate.

Analysis (submitted by manufacturer).—Moisture 6.2%, ash 4.7%, fat (by acid hydrolysis) 6.8%, protein (N × 6.25) 15.3%, fiber 1.9%, carbohydrates 65.1%, calcium (Ca) 762 mg. per hundred grams, phosphorus (P) 980 mg. per hundred grams, iron (Fe) 23 mg. per hundred grams.

Calories.—108 per ounce; 3.8 per gram.

Vitamins.—

	Per Hundred Grams
Thiamine	1.06 mg.
Riboflavin	0.14 mg.
Niacin	1.4 mg.

Libby, McNeill and Libby, Chicago.

LIBBY'S BRAND HOMOGENIZED PEARS.

Analysis (submitted by manufacturer).—Total solids 16.85%, moisture (by difference) 83.15%, total ash 0.29%, nitrogen 0.03%, fat 0.02%, protein (N × 65) 0.16%, crude fiber 1.20%, carbohydrates (by difference) 15.18%, salt (as NaCl) 0.09%, iron (Fe) 3.42 mg. per hundred grams, copper (Cu) 0.26 mg. per hundred grams, calcium (Ca) 19.7 mg. per hundred grams, phosphorus (P) 8.59 mg. per hundred grams.

Calories.—0.62 per gram, 17.49 per ounce.

LIBBY'S HOMOGENIZED LIVER SOUP consists of tomato juice, carrots, water, beef liver, celery, potatoes, whole barley flour, salt and onions.

Analysis (submitted by manufacturer).—Total solids 12.58%, moisture 87.42%, protein 3.12½%, fat 0.30%, carbohydrate 7.07%, crude fiber 0.92%, ash 1.17%, salt 0.85%, calcium (Ca) 26.83 mg. per hundred grams, phosphorus (P) 71.7 mg. per hundred grams, iron (Fe) 2.3 mg. per hundred grams, copper (Cu) 0.28 mg. per hundred grams.

Calories.—45.0 per hundred grams.

Vitamins.—Thiamine 0.1 mg. per hundred grams.
Ascorbic acid 4.8 mg. per hundred grams.

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SATURDAY, APRIL 14, 1945

AIR FRESHENERS

Since the introduction of air conditioning, people have recognized that artificial climates lack some intangible quality that characterizes outside air at its best. However purified, moved, protected or otherwise treated, the air of air conditioning systems designed for human consumption fails to measure up to the "zestfulness of country air." A variety of investigations has been directed to the determination and provision of this highly desirable quality. At various times consideration has been given to the use of ionization, ozone, chlorophyll and other devices and materials. Numerous products and procedures have reached the market with the claim that outside air with all its good qualities has been reproduced on the inside. Largely these claims are merely claims, without reality. The American Society of Heating and Ventilating Engineers through one of its official publications has stated that "extensive studies have failed to elucidate the cause of the stimulating qualities of country air, qualities which are lost when such air is brought indoors and particularly when it is handled by mechanical means."

The American Medical Association's Committee to Study Air Conditioning in a recent preliminary report to the Board of Trustees, not yet published, makes this statement: "Air provided by air conditioning systems may be deodorized, properly humidified or dehumidified, moved at rates suitable for human comfort and altogether may promote human comfort, but there still remains an artificial quality. Early future developments may bring the air of the country hilltop into the cocktail lounge, but, as labeled by the committee charged with the responsibility of watching such development, such air not yet has arrived."

This committee has been concerned with the hope that developments in the art of air conditioning will eventually provide inside atmospheres in all respects equal to outside ones. At this time, however, the committee does not know any product or practice which will impart to atmospheres distributed by mechanical means the much desired qualities of country air.

CARBONIC ANHYDRASE

Early in this century, with the advent of physics and chemistry as tools in biologic research, the mechanisms of many vital equilibriums became better understood. Thus, in connection with the chemistry of respiration it was learned that a large proportion of the carbon dioxide is carried by the blood in the form of bicarbonate. However, it was shown later that less than 2 per cent of the carbon dioxide evolved from the blood in the lungs could come from the uncatalyzed decomposition of bicarbonate; a search was then made for a factor promoting this remarkably efficient reaction. In 1932 Meldrum and Roughton [1] discovered an enzyme in the erythrocyte whose function is to expedite the decomposition of bicarbonate to carbon dioxide and water and also to reverse this reaction under favorable conditions. This catalyst, which was named carbonic anhydrase, is a protein, containing zinc in the molecule, showing optimal activity at p_H 7.0 and capable of exerting measurable activity in a dilution of one to ten million.

Obviously, knowledge of the distribution in the body of an enzyme with such specificity might be expected to lead to an elucidation of certain types of metabolic processes. Carbonic anhydase has been found in the gastric mucous membrane of the rat, cat and rabbit in concentrations higher than that in the red blood cells.[2] The distribution coincides with the areas where the acid gastric juice is secreted, and the concentration of the enzyme is parallel to the number of parietal cells present. Further studies by Davenport have led to the belief that the hydrogen ions of the gastric hydrochloric acid arise in the carbonic acid synthesized under the influence of the carbonic anhydrase of the parietal cells. That this enzyme plays a part in the elaboration of gastric hydrochloric acid is further indicated by the fact that thiocyanate inhibits its activity and in a parallel way decreases the formation of acid.[3]

Recently the distribution of carbonic anhydrase in the central nervous system has received detailed attention; the concentration of the enzyme at various levels of the spinal cord and of the brain of several species of animals and of man has been determined.[4] Within a given species the pattern of distribution is constant and, in general, the amount of carbonic anhydrase increases in a rostral direction. In the human brain the greatest concentration is in the white matter immediately below the cortex, whereas in the animals studied the maximum enzyme activity occurred in the gray matter of the cortex. It is of interest that the pattern of distribution of carbonic anhydrase is little if any

1. Meldrum, N. U., and Roughton, F. J. W.: J. Physiol. **80**: 113, 1933.
2. Davenport, H. W., and Fisher, R. B.: J. Physiol. **94**: 16P, 1938. Davenport, H. W.: J. Physiol. **97**: 32, 1939; Am. J. Physiol. **128**: 725, 1940.
3. Davenport, H. W.: Am. J. Physiol. **129**: 505, 1940.
4. Ashby, Winifred: J. Biol. Chem. **151**: 521, 1943; **152**: 235, 1944; **155**: 671, 1944; **156**: 323, 331, 1944.

different in the brain of insane persons than it is in normal brains.

Although the function of carbonic anhydrase in the red blood cell and in the gastric mucosa seems well defined, the physiologic significance of this enzyme in the brain and in the spinal cord is less evident. The intensity of metabolism in the central nervous system is high; it is possible that the carbonic anhydrase is part of the mechanism for the speedy removal of the resulting carbon dioxide.

UNITED STATES CADET NURSE CORPS

Elsewhere in this issue (page 995) appears a condensation of the testimony of Surg. Gen. Thomas Parran of the United States Public Health Service before the House Committee on Military Affairs. This statement reviews the development, organization and accomplishments of the United States Cadet Nurse Corps.

This corps is probably the most successful recruitment effort of the war. During the first year the number of graduates was relatively small, totaling 1,206. During the current fiscal year this number will be increased to 9,165. In following years there will be sharp increases in graduates, totaling over 25,000 in 1945-1946 and over 35,000 in 1946-1947.

The Cadet Nurse Corps was organized for students who pledged to "engage in essential nursing, military or civilian, for the duration of the war." Despite the fact that military duty is not required of the graduates, 40 per cent of the graduates during the first eighteen months of the existence of the corps have applied for military service. This is a much greater proportion than exists in graduates who are not in the corps. During the last year approximately 29,000 nurses graduated from all schools. Had 40 per cent of these entered the armed services, the full army quota of 10,000 additional nurses required by the Army in 1944 would have been exceeded.

The Cadet Nurse Corps is accomplishing important results in civilian nursing, not merely by providing badly needed nursing care but also by replacing and releasing graduate nurses. It is estimated that students in nursing schools are now giving 80 per cent of nursing care in their affiliated hospitals. The recruitment program of the United States Cadet Nurse Corps has contributed immeasurably toward preventing a collapse of nursing care in civilian hospitals.

Discussing the cost of this program, the Surgeon General says "In my opinion the country has received and increasingly will receive substantial returns on this investment. We cannot measure what the loss to the country would have been if civilian nursing service had collapsed, any more than we could measure the cost of failure on the Normandy beachheads."

Current Comment

PENICILLIN BY MOUTH

Simplified methods of administering penicillin that will provide adequate and prolonged blood concentrations are being sought by many investigators. Chow and McKee [1] combined crystalline penicillin with human plasma proteins to make a large penicillin protein complex, which in mice is more slowly absorbed after intramuscular injection. György and his associates [2] have administered penicillin orally with trisodium citrate as a buffer salt to eliminate the destructive action on penicillin by the hydrochloric acid in the stomach. Little and Lumb [3] have used both the stabilizing effect of protein and the buffer action of sodium bicarbonate in administering penicillin by mouth. In doing routine penicillin sensitivity assays by the "gutter plate" method, Little and Lumb sometimes used the Seitz filtered urine of patients receiving penicillin parenterally. They noted that the urine solution seemed to retain its activity longer than the saline solution of the sodium salt of penicillin. They devised experiments to compare the stability of urine solutions from 25 patients receiving penicillin intramuscularly with a control penicillin in saline solution. Their results showed that the antibacterial substance in the urine was more resistant to changes in p_H and to heat than was the saline solution of penicillin. Sodium penicillin mixed with normal urine acted as the penicillin in saline solution. This apparent stabilization of penicillin by passage through the body suggested that it might be possible to stabilize penicillin outside the body so that it could be given orally. In choosing stabilizing agents the fact that penicillin is excreted in appreciable amounts in the bile suggested the use of cholesterol and sodium taurocholate. Other accounts had indicated sulfur to be the important element in stabilizing penicillin. As suitable pure chemical substances were not available the authors decided to use milk and eggs. Penicillin in these various diluents when incubated at p_H 7.5 for six hours at 37 C. was still active in all the solutions. When the p_H was reduced to 2.5 penicillin was destroyed in the distilled water, saline and cholesterol solutions; it was seriously affected in plasma and milk and showed the least damage in the raw egg solution. Taurocholate also had some protective action. In a volunteer with gastric hyperacidity the most satisfactory excretion of penicillin in the urine occurred when he was given alkali, sodium bicarbonate, followed by penicillin mixed with raw egg. Three other volunteers received this mixture with successful results. The same dose of alkali and egg penicillin was given to a patient with achlorhydria to test the possibility of destroying the action of penicillin by overalkalization. In this patient also the urinary excretion of penicillin was normal. Early tests on volunteers and patients showed that when 20,000 units of penicillin was taken orally the proportion excreted in the

1. Chow, B. F., and McKee, C. M.: Interaction Between Crystalline Penicillin and Human Plasma Proteins, Science **101:** 67 (Jan. 19) 1945.
2. György, Paul, and others: Administration of Penicillin by Mouth, J. A. M. A. **127:** 639 (March 17) 1945.
3. Little, C. J. Harwood, and Lumb, George: Penicillin by Mouth, Lancet **1:** 203 (Feb. 17) 1945.

urine was 75 to 80 per cent, which is much the same as for the intramuscular administration of 15,000 units, but, on the average, excretion continued for five to six hours after a single oral dose, as against four to five hours after intramuscular injection. Tests were also carried out to compare the concentration of penicillin in the blood serum of persons receiving penicillin orally and intramuscularly. Early work indicated that oral administration caused a slow rise to a peak concentration in the serum prolonged for at least three hours. Using the intramuscular route there was an abrupt rise of penicillin concentration in the serum to a high level fifteen to thirty minutes after injection followed by a rapid fall, so that two or three hours after injection penicillin was not detected in the serum by plate methods. Subsequent serum estimates on a larger series of cases show the oral and intramuscular curves more nearly alike. Clinically the results of administering penicillin by mouth with sodium bicarbonate and egg appeared satisfactory in cases of tonsillitis. The method is now on trial in gonorrhea, pneumonia and surgical sepsis.

COLLOID LAXATIVES

Among the various physical agents used in the treatment of constipation the hydrophilic gums (acacia, karaya, tragacanth, bassora, agar, Irish moss, psyllium seed) occupy a prominent place. They have considerable power to retain water and to give with water viscous colloidal solutions. They lubricate and protect the intestinal mucosa, favor soft consistency of the stool by their water binding power and increase its bulk, which through distention of the intestinal wall stimulates the peristalsis.[1] The frequency and ease of bowel movements are thereby increased. Significant increase in the bulk of feces results when these agents are given orally in dry form. This is especially pronounced in the case of Irish moss, psyllium seed and agar but absent when completely hydrated colloidal solutions of the gums are used. The laxative action extends throughout the entire length of the bowel because these substances are metabolized in minor degree only by the enzymes of the intestinal bacteria and mucosa. They contrast in this respect with the hemicellulose pectin, which is readily broken down in the colon to disappear from the stool and is used in the treatment of diarrhea. The recent development of several synthetic mucilages, such as polyvinyl alcohol and methylcellulose, provide hydrophilic colloids which are nontoxic when given orally, are not absorbed by the intestinal mucosa, are not degraded by intestinal enzymes and are nonantigenic. In addition to these obvious advantages over the natural gums they have a high degree of chemical uniformity. Numerous experiments [2] in feeding man and animals with methylcellulose have shown that it is excreted practically quantitatively with the stool without any untoward effects even after prolonged administration. Tainter [3] used the highly viscous type of methylcellulose (4,000 centipoises) as a colloid laxative in animals and in man and found that only 5 Gm. twice daily produced stools with increased water content and bulk, semisoft consistency and easy passage. These hydrophilic colloids share with the other gums the advantage over liquid petrolatum that they do not interfere with the intestinal absorption of fat soluble vitamins and are not taken up to any degree by the intestinal mucosa.

1. Gray, H., and Tainter, M. L.: Colloid Laxatives Available for Clinical Use, Am. J. Digest. Dis. **8**: 130, 1941.

2. Machle, W.; Heyroth, F. F., and Witherup, S.: The Fate of Methylcellulose in the Human Digestive Tract, J. Biol. Chem. **153**: 551, 1944. Deichmenn, W., and Witherup, S.: Observations on the Ingestion of Methyl Cellulose and Ethyl Cellulose by Rats, J. Clin. & Lab. Med. **28**: 1725, 1943. Bauer, R.; Lehman, A. J., and Yonkman, F. F.: Chronic Toxicity of an Alkyl Ether or Cellulose Methyl Cellulose, Fed. Proc., Am. Soc. Exper. Biol. **3**: 65, 1944.

3. Tainter, M. L.: Methyl Cellulose as a Colloid Laxative, Proc. Soc. Exper. Biol. & Med. **54**: 77, 1943.

EXPERIMENTAL HUMAN TRANSMISSION OF INFECTIVE HEPATITIS (INFECTIOUS JAUNDICE)

The failure of efforts to transmit infective hepatitis to animals led to experiments on human volunteers. The reports of such experiments since 1942 are listed in an article by Havens, Paul, Van Rooyen and others [1] in which they review briefly the results of their own work on human transmission of infective hepatitis by the oral route. The disease can be transmitted to human beings in various ways. The causal agent, which there is reason to believe is a heat stable and filtrable virus, has been found in the blood, in feces and probably also in nasopharyngeal washings as well as in urine, in the early stages of the attack, in some instances even before the recognition of jaundice.

The experiments by MacCollum and Bradley,[2] by Havens and his co-workers,[1] and by Findlay and Willcox [3] all indicate that the causal agent of infective hepatitis is present in the feces of the patient. The disease has been caused in volunteers by feeding capsules of fecal material from cases of hepatitis or by spraying such material into the nasal and nasopharyngeal passages. Findlay and Willcox [3] report positive results from the oral introduction of urine from a patient with infective hepatitis. In all these positive results the incubation period was about thirty days.

As yet experiments have not been reported with the feces of patients with "serum jaundice" following the injection of human serum or plasma, particularly yellow fever vaccine containing human serum. But positive results have been reported from the parenteral injection with serum of patients suffering from "serum jaundice," the incubation period being, however, much longer than in positive experiments with materials from cases of spontaneous hepatitis.

The human experiments on infective hepatitis are giving results of great significance. They point to the intestinal-oral circuit as "part at least of the natural route of spreading infective hepatitis." Contamination of food and drink may be the cause of "the fulminating outbreaks occasionally encountered among both civil and military population." The results of the experiments will also serve as a basis for further investigations into the nature of the causative agent.

1. Havens, W. P.; Paul, J. R.; Van Rooyen, C. E., and others: Human Transmission of Infective Hepatitis by the Oral Route, Lancet **1**: 202 (Feb. 17) 1945.

2. MacCollum, F. O., and Bradley, W. H.: Transmission of Infective Hepatitis to Human Volunteers, Lancet **2**: 228, 1944.

3. Findlay, G. M., and Willcox, R. R.: Transmission of Infective Hepatitis by Feces and Urine, Lancet **1**: 212 (Feb. 17) 1945.

MEDICINE AND THE WAR

ARMY

GROWTH OF ARMY MEDICAL CENTER

Major Gen. Shelley U. Marietta, commanding general of the Army Medical Center, recently stated that there was no truth in the rumor that the Forest Glen section of Walter Reed Hospital is to be transformed into an operative section of this hospital. Forest Glen is actually being further developed for the benefit of personnel sent there for recuperation after operations. Buildings now being erected there provide for the expansion of this feature of physical rehabilitation. However, General Marietta said that the branch at Beltsville, Md., used for patients most advanced toward rehabilitation, is to be abandoned, and patients who would normally be sent there will be sent to convalescent camps throughout the United States.

NURSES GRADUATE AT A. A. F. SCHOOL OF AVIATION MEDICINE

Thirty-five officers of the Army Nurse Corps recently graduated from the Army Air Forces School of Aviation Medicine, Randolph Field, Texas, ten as "flight nurses" and twenty-five as "chief nurses."

The course for flight nurses extends over a period of nine weeks. This is divided into three phases of three weeks each. The first phase is a review of various military and medical subjects required of all military personnel. The second phase is concerned with material peculiar to air evacuation, and the third phase is occupied by actual evacuation flights with the zone of the interior.

The four weeks course given to the chief nurses is designed to familiarize the nurse with various phases of military nursing and nursing administration as well as to enable her to function in a supervisory capacity over Army Nurse Corps personnel.

The diplomas were presented by Col. John R. McGraw, acting commandant of the school.

SALE OF ARMY BANDAGES

Howard Bonham, in charge of public relations for the American Red Cross, points out that the 28,000,000 army bandages that were sold as dusters were not American Red Cross dressings but were purchased from commercial concerns. None of the Red Cross dressings have been salvaged by the War Department. On the contrary, the American Red Cross was recently requested to supply an additional 43,000,000 dressings. The Congressional action controlling the disposal by government agencies of surplus property acquired in connection with the war effort states that no surgical dressings, garments or other items processed, produced or donated by the American Red Cross may be disposed of except after consultation with the American Red Cross.

"LET'S WALK"

Under the title "Let's Walk," the Convalescent Training Division of the Office of the Air Surgeon has issued a manual (Air Forces Manual No. 49) which is designed to teach the man who has had a leg amputation to walk again. It is a well illustrated, carefully prepared handbook, telling the man how to exercise in order to prepare his muscles for the job. There follows a history of crutches, with a description of the various types available and full information leading up to the ultimate use of an artificial limb. The book is based on a large experience and should be most helpful in achieving its purpose.

NAMED POST SURGEON

Col. Charles E. Sima, M. C., has been appointed post surgeon at Fort Des Moines, Iowa, succeeding Major Charles H. Coughlan, who has been transferred to Camp Carson, Colorado.

MEDICAL AID MAN AWARDED MEDAL OF HONOR

The Medal of Honor was recently awarded to a medical aid man, Pvt. Harold A. Garman, formerly of Albion, Ill., who saved the lives of three seriously wounded infantrymen last August 25 when the assault boat in which they were being evacuated across the Seine was fired on by the Germans. At the time of the action Private Garman's medical battalion, the Fifth, was attached to the Fifth Infantry Division of the Third Army, then fighting near Montereau, France. The citation accompanying the award read:

"For conspicuous gallantry and intrepidity at the risk of his life above and beyond the call of duty. On Aug. 25, 1941, in the vicinity of Montereau, France, the enemy was sharply contesting any enlargement of the bridgehead which our forces had established on the northern bank of the Seine River in this sector. Casualties were being evacuated to the southern shore in assault boats paddled by litter bearers from a medical battalion.

"Private Garman, also a litter bearer in this battalion, was working on the friendly shore carrying the wounded from the boats to waiting ambulances. As one boatload of wounded reached midstream, a German machine gun suddenly opened fire on it from a commanding position on the northern bank 100 yards away. All of the men in the boat immediately took to the water except one man, who was so badly wounded that he could not rise from his litter. Two other patients who were unable to swim because of their wounds clung to the sides of the boat.

"Seeing the extreme danger of these patients, Private Garman without a moment's hesitation plunged into the Seine. Swimming directly into a hail of machine gun bullets he rapidly reached the assault boat and then, while still under accurately aimed fire, towed the boat with great effort to the southern shore.

"This soldier's moving heroism not only saved the lives of the 3 patients but so inspired his comrades that additional assault boats were immediately procured and the evacuation of the wounded resumed. Private Garman's great courage and his heroic devotion to the highest tenets of the Medical Corps may be written with great pride in the annals of the corps."

RECENT LECTURES AT SAN FRANCISCO PORT OF EMBARKATION

A series of lectures in Industrial Nursing and Medicine was held at the Port Dispensary, San Francisco Port of Embarkation, Fort Mason, California, under the United States Army Industrial Medical Program from Nov. 29, 1944 to March 7, 1945. The conference was open to all industrial nurses, personnel managers and safety engineers in the San Francisco Bay area. The series was arranged by Col. H. S. Villars, M. C., port surgeon for the San Francisco Port of Embarkation. Among the subjects discussed were the medical aspects of industrial diseases, health education, women in industry and mental hygiene.

ARMY AWARDS AND COMMENDATIONS

Colonel Elliott G. Colby

Col. Elliott G. Colby, formerly of San Diego, Calif., has been awarded the Bronze Star "for meritorious achievement in connection with military operations against the enemy on Saipan, Marianas Islands, as surgeon for Army Garrison Force APO 244, an Island Command, Saipan, Marianas Islands, from April 15, 1944 to Nov. 24, 1944. Colonel Colby landed on Saipan on D plus 2 and assisted at the evacuation stations and field hospitals. With inadequate personnel he established a hospital

for the care of a civilian population of approximately 17,000 and generally supervised the sanitation of the civilian camp during the period of the assault. He made early reconnaissance in areas infested with Japanese snipers, selected sites and prepared layouts for the hospitals. He prepared a plan for and participated in the establishment of the air evacuation of casualties which was successfully conducted from the island of Saipan. Colonel Colby was confronted with a task of establishing sanitary and livable conditions on an island utterly devastated and on which there were scarcely forty inhabitable and no undamaged buildings. The thousands of unburied enemy dead, the mounds of débris and the unhealthful habits of disease ridden civilians, added to the swarming flies, crawling insects, teeming mosquitoes and multitudinous vermin, virtually all disease bearing, posed one of the major problems of the occupation and resulted in an epidemic of dengue and dysentery which threatened the success of the mission. By his untiring efforts, ingenuity, practical approach and professional ability he devised and initiated a program of spraying the island from an airplane with DDT, using improvised equipment, and thereby eradicated the flies, mosquitoes and vermin, which immediately reflected a reduced rate of illness and restored the maximum number of soldiers to duty. This accomplishment was a major contribution to the success of the mission, which made possible the mass air raid on Tokyo on Nov. 24, 1944." Dr. Colby graduated from the College of Medical Evangelists, Los Angeles, in 1922 and entered the service Sept. 16, 1940.

Lieutenant Colonel James W. Branch

Lieut. Col. James W. Branch, formerly of Hope, Ark., was recently awarded the Bronze Star "for meritorious achievement in connection with military operations against an enemy of the United States in France during the period July 29, 1944 to Oct. 13, 1944. He controlled and directed the activities of the . . . Medical Battalion Armored which evacuated . . . wounded and sick. Frequently he operated in enemy territory, and on one occasion he with another officer and an enlisted man was captured. After being held captive for three days and being subjected to both friendly and enemy artillery fire, he succeeded in persuading fifty of the enemy to surrender. This action supplied our troops with much valuable information. Lieutenant Colonel Branch organized collecting platoons and treatment platoons so that fatal casualties were rare once the wounded reached the medical battalion. When unit detachments sustained casualties, trained aid men from the medical battalion were able to perform these functions efficiently. His professional knowledge, ability to organize the medical evacuation, and his tactical efficiency reflects great credit on himself, his battalion and the Medical Corps of the United States Army." Dr. Branch graduated from the University of Arkansas School of Medicine, Little Rock, in 1935 and entered the service Feb. 3, 1941.

Captain Nicholas W. Hatfield

The Silver Star was recently awarded to Capt. Nicholas W. Hatfield, formerly of Indianapolis, "for gallantry in action at Biak Island, June 7, 1944. Although himself painfully and seriously wounded during the barrage of enemy artillery and mortar fire, Captain Hatfield, a medical officer in command of a collecting platoon, refused to be evacuated until he had personally treated the casualties brought to him by personnel of his platoon. This required four hours, during which time he was continually exposed to intermittent enemy fire. When the last casualty had been treated and evacuated, Captain Hatfield was carried to the beach evacuation point. Owing to limited facilities for evacuating wounded to hospitals in the rear, Captain Hatfield again refused to be evacuated until the evacuation of the other wounded had been completed. This necessitated another delay of thirty-six hours. His outstanding devotion to duty probably saved the lives of many wounded." Dr. Hatfield graduated from Jefferson Medical College of Philadelphia in 1935 and entered the service July 5, 1942.

Brigadier General Edgar King

Brig. Gen. Edgar King, commanding officer of the Medical Section, Army Service Forces Training Center, Fort Lewis, Washington, was recently awarded the Legion of Merit for "exceptionally meritorious conduct in the performance of outstanding services." The citation states that General King "directed and coordinated the organization, training and supply of medical units which participated with the forces engaged in the successful operations in the Filbert, Marshall and Marianas Islands." General King graduated from the University of Arkansas School of Medicine, Little Rock, in 1906 and from the Army Medical School in 1907. He was surgeon of the Hawaiian Department at the time of Pearl Harbor and was awarded the Distinguished Service Medal for outstanding work in caring for Pearl Harbor casualties. Subsequently he was surgeon of the Central Pacific Area and then became surgeon of the United States Armed Forces, Pacific Ocean Area.

Major Howard P. Serrell

The Silver Star was recently presented to Major Howard P. Serrell, formerly of Greenwich, Conn., for "meritorious service" in France. Dr. Serrell, who graduated from Cornell University Medical College, New York, in 1932, entered the service in November 1942. The War Department stated that he was decorated for "voluntarily flying into besieged Bastogne on Christmas Day to render medical aid to the U. S. forces there." Accompanied by a medical corpsman, Dr. Serrell flew into Bastogne in a small plane accompanied by four U. S. Army Air Corps pursuit ships as guards. Throughout Christmas day he performed twenty major operations, "saving many lives." Dr. Serrell also took part in the D day invasion of Normandy.

Captain Benedict Biondi

The Chinese Grand Star of Honor Medal, for outstanding and distinguished service rendered to the republic of China and to the Chinese army, was recently presented to Capt. Benedict Biondi, formerly of New Haven, Conn. With the medal Dr. Biondi also received a certificate with the official Chinese signatures. Dr. Biondi graduated from Tufts College Medical School, Boston, in 1938 and entered the service Aug. 13, 1943. He is now serving in China with the Fifty-Third Portable Surgical Hospital.

Captain William Henry

Capt. William Henry, formerly of New York City, was recently awarded the Bronze Star for heroism. Dr. Henry is regimental surgeon of the 112th Infantry medics (with the 28th Infantry Division in France). He has been active at the front in all of the 28th's campaigns—the Normandy hedgerow battles, the closing of the Falaise Gap, the sweep across Belgium and Luxembourg and the first allied punch at the Siegfried Line on Sept. 10, 1944. Dr. Henry graduated from Long Island College of Medicine, Brooklyn, in 1941 and entered the service July 1, 1942.

Colonel Marshall M. Best

For meritorious service last year the Bronze Star was awarded to Col. Marshall M. Best of Xenia, Ohio, now stationed in France. Accompanying the award was a citation from Brig. Gen. William L. Richardson, which complimented Dr. Best for his "ingenuity, enthusiasm and skill" as command surgeon of the Ninth Air Service Command. Dr. Best graduated from the University of Cincinnati College of Medicine in 1927 and entered the service Jan. 5, 1941.

Major G. Charles Morrone

The Bronze Star for "meritorious service" in connection with military operations against the enemy in France and Belgium was recently awarded to Major G. Charles Morrone of Yonkers, N. Y., while serving as general surgeon of the 44th Evacuation Hospital. Dr. Morrone graduated from Georgetown University School of Medicine, Washington, in 1930 and entered the service in August 1942.

Colonel Anthony J. Lanza

The Legion of Merit was recently awarded to Col. Anthony J. Lanza, formerly of Arlington, Va., "for exceptionally meritorious conduct in the performance of outstanding services from March 1942 to December 1944." Dr. Lanza graduated from George Washington University School of Medicine, Washington, in 1906 and entered the service March 12, 1942.

MISCELLANEOUS

THE CADET NURSE CORPS

Testimony of Thomas Parran, Surgeon General, U. S. Public Health Service, Before the House Committee on Military Affairs, February 6

The Public Health Service, working with the hospital and nursing associations, has been actively concerned with the total wartime nursing problem since 1941. In the fiscal years 1941-1943 Congress appropriated $5,300,000 to be allotted to nurse training schools as incentive payments to increase student nurse enrolments. In the spring of 1943 it became apparent that the limited measures were insufficient to meet the demands of total war. After extensive hearings the Bolton Nurse Training Act was passed. The provisions of this act were designed by all national nursing and hospital groups, who were agreed that this was the only practical way to meet the total situation. Under the provisions of the Bolton act the U. S. Cadet Nurse Corps was organized. The purpose of the act is to furnish an adequate supply of nurses for the armed forces, governmental and civilian hospitals, health agencies and war industries. Consideration at that time was given to establishing a program exclusively for the armed forces. It was decided, and I think wisely decided, that one unified training program should be undertaken to meet both the military and civilian needs. The Bolton act became effective July 1, 1943. Under its provisions grants of federal funds are made to schools of nursing meeting provisions of the act. The more important provisions are (1) that the school will give an accelerated program of training (twenty-four to thirty months instead of thirty-six months), (2) that students admitted to the corps pledge to "engage in essential nursing, military or civilian, for the duration of the war" and (3) that in return for the moral obligation which the student nurse assumes, the government pays all reasonable tuition, fees and other training costs and provides a distinctive uniform.

The U. S. Cadet Nurse Corps has been highly successful; in fact, it has been recognized as the most successful recruitment effort of the war. More than 1,100 out of a total of 1,300 nurse training schools are participating. A quota of new admissions to all schools was set at 65,000 for the first fiscal year. The actual number of admissions was 65,521. The quota set for the current fiscal year is 60,000 and for next year the same. The total corps membership of first, second and third year students on Jan. 1, 1945 was 105,000. These quotas do not represent the full needs of the country for nursing service. They do represent, however, the maximum training capacity of the nurse training institutions, and the numbers being trained should meet our most urgent needs for nurses.

Since many schools could not accelerate their training programs for older students and since most of these students had already paid their tuitions, only a small proportion of students approaching graduation at that time joined the corps. As a result, during the first fiscal year there were only 1,206 graduates of the corps, and during the current fiscal year 9,165. The number will increase sharply: for the fiscal year 1945-46, 25,166; for the fiscal year 1946-47, 35,579.

All required clinical experience, laboratory and classroom instruction must have been completed under an accelerated program within a period of not more than thirty months. This makes the student available as a senior cadet for full time nursing service during her last six months before graduation. She performs hospital nursing service comparable to that of a graduate nurse. Many state regulations require thirty-six months' training before a student nurse may graduate and take the examination to become a registered nurse.

The Bolton act provides that senior cadets may apply for service in army, navy and other federal hospitals in this country. From April 1944, the first date at which senior cadets became available, until Jan. 1, 1945 the total number of senior cadet nurses was 8,556. The U. S. Civil Service Commission, clearing agency for the federal services, reported 10,168 applications during that same period. Some of these applicants will not be available for active duty until the first months of 1945. The number of available senior cadets will be doubled and trebled during the current and next fiscal years.

The single most important and immediate function of the Cadet Nurse Corps has been the replacement of graduate nurses in civilian hospitals, which makes it possible for greater numbers of graduates to go into the military. Even in 1943, before the great increase in student enrolment, student nurses were giving two thirds of all the nursing care in civilian hospitals operating training schools (Altenderfer, Marion E.: *Pub. Health Rep.* **60**:90 [Jan. 26] 1945). Our best estimates are that students now are giving 80 per cent of nursing care in their associated hospitals.

By replacing graduate nurses who already have gone into the military, the U. S. Cadet Nurse Corps has prevented a collapse of nursing care in civilian hospitals. Moreover, the increasing number of graduates constitute a reservoir of nurse power which if effectively distributed would in my opinion meet both the military and minimum civilian needs.

This nurse training program represents a substantial investment of federal funds: $63,000,000 during the current fiscal year. In my opinion the country has received and increasingly will receive substantial returns on this investment. We cannot measure what the loss to the country would have been if civilian nursing service had collapsed, any more than we could measure the cost of failure on the Normandy beachheads. We can, however, recognize the practical contribution already made by the thousands of loyal and tireless members of the U. S. Cadet Nurse Corps. They have made it possible to release many more graduates to the armed forces; as senior cadets they have given service comparable to graduates in the five federal services, the largest of which is the Army. Increased admissions to schools of nursing in 1944 (76 per cent as compared with 1940, the last year prior to federal aid) have prevented the collapse of civilian nursing, the reservoir from which the military must draw.

Cadet nurses have been critized because not all of them have applied for military service. The law as passed by the Congress does not impose that obligation on them. Of the approximately 10,500 nurses who have graduated from the Cadet Nurse Corps during its first eighteen months existence ended Jan. 1, 1945, 40 per cent have applied or have actually been accepted by the military services, and this record was made during the time when the public believed the war about to end. It does not include the peak enlistment period since January 1. They have responded for military duty in much greater proportion than have their classmates who were not in the corps. To be specific, there were graduated from nurse training schools last year some 29,000 nurses. If 40 per cent of this total number had entered the armed services the Army's 1944 quota of 10,000 additional nurses would have been exceeded at the time the President made his recommendation.

Hospitals today are caring for the largest number of patients in their history in spite of the fact that we have no widespread epidemics. While some nurses can be withdrawn from hospital service, there is no large reservoir in this group. The Army should not accept nurses who are occupying positions which are really essential. There are two groups of nurses in particular where a great damage may be done. Public health departments and visiting nurse associations employ approximately 21,000 nurses. None of them are overstaffed. In fact, this figure represents 20 to 30 per cent vacancies. Public health nurses constitute the largest single group among all health department employees. Without nurses, health departments cannot operate. Because many hospitals are overloaded, many sick patients are being cared for in their homes by visiting nurses.

The nurse training schools are training an unprecedented number of nurses. Losses of teaching staffs to the military have been severe during the past three years.

We must continue, therefore, to supply a minimum number of graduates with minimum special preparation to fill key positions vacated in staffs of public health agencies and schools of nursing.

As the war progresses, the major civilian health problems are still ahead of us. We shall see the cumulative effects of fatigue, long hours of work, worry, anxiety and grief. In other words, there is bound to be a lower level of civilian health and greater susceptibility to disease. We have been fortunate up to now in not having had any serious epidemics.

ROCHESTER LEAGUE FOR THE HARD OF HEARING TO AID VETERANS

The Rochester League for the Hard of Hearing, Rochester, Minn., recently completed a program whereby returning veterans who have suffered loss of hearing at the battle fronts will be given aid and instructions. The league has trained interviewers and teachers and a program of social activities. The organization can direct the hard of hearing person to the agency that will try to place him in a job or suggest his vocational training needs. The league conducts classes in lip reading, with instructors supplied by the board of education. It is equipped also with a club room and kitchen for social activities. Another service the organization offers is audiometer tests to guide the hard of hearing in the selection of mechanical hearing aids that are on the market.

PSYCHIATRIC NURSING SCHOOLS

Neuropsychiatric nursing schools are now activated at the following general hospitals in the stated service commands: First, Pushing, at Framingham, Mass.; Second, Mason, at Brentwood, N. Y.; Fourth, Kennedy, at Memphis; Seventh, Fitzsimons, at Denver; Eighth, McCloskey, at Temple, Texas. The Army Medical Department stated that similar schools will be established in the other commands in a short time.

Leading specialists are now supervising a three month training course in these schools. The enrollees are volunteer army nurses, and a certificate of neuropsychiatric nursing is awarded on successful completion of the course. At least two of these nurses are assigned to each general hospital in this country and to the staff of general hospitals organized in this country for service abroad.

BELGIAN AMERICAN EDUCATIONAL FOUNDATION, INC.

Three pamphlets, published in French, on the subject of blood transfusion, penicillin and the use of the sulfonamide drugs were recently issued by the Belgian American Educational Foundation, Inc. (420 Lexington Avenue, New York 17) and are being distributed free of charge to members of the medical profession in Belgium. Some of these pamphlets have already arrived in Belgium and additional pamphlets are now being prepared.

HOSPITALS NEEDING INTERNS AND RESIDENTS

The following hospitals have indicated to the Council on Medical Education and Hospitals that they have not completed their house staff quota allotted by the Procurement and Assignment Service:

(Continuation of list in THE JOURNAL, April 7, page 928)

DELAWARE

Wilmington General Hospital, Wilmington. Capacity, 224; admissions, 4,267. Mr. T. A. Weth, Superintendent (1 intern).

ILLINOIS

Loretto Hospital, Chicago. Capacity, 159; admissions, 4,221. Sister M. Stephanie, R.N., Superintendent (interns, October and December).

St. Mary's Hospital, East St. Louis. Capacity, 276; admissions, 5,366. Sister M. Prosperia, R.N., Superintendent (2 interns).

MASSACHUSETTS

Brockton Hospital. Brockton. Capacity, 151; admissions, 2,608. Dr. F. M. Hollister, Superintendent (1 intern, July 1).

NEW YORK

Israel Zion Hospital, Brooklyn. Capacity, 518; admissions, 9,867. Dr. J. Prager, Executive Director (interns, July and October).

Mother Cabrini Memorial Hospital, New York City. Capacity, 205; admissions, 3,212. Mother Corinna, Superior (interns).

NORTH CAROLINA

Watts Hospital, Durham. Capacity, 225; admissions, 7,527. Mr. Samuel B. Forbus, Superintendent (2 interns, 1 resident—medicine, July 1).

OHIO

St. Thomas Hospital, Akron. Capacity, 235; admissions, 6,147. Sister M. Eleanor, R.N., Superintendent (2 interns, 1 resident, July 1).

WARTIME GRADUATE MEDICAL MEETINGS

The following subjects and speakers for Wartime Graduate Medical Meetings have just been announced:

California

A. A. F. Regional Hospital, March Field, Riverside: Blood Plasma and Substitutes, Lieut. Col. R. M. Jones; Water Balance, Major Edward Swartz, April 17.

Torney General Hospital, Palm Springs: Fractures About the Wrist, Lieut. Col. Richard B. McGovney; Fractures About the Ankle Joint, Dr. Samuel S. Mathews, April 17.

Station Hospital, Camp Cooke, Lompoc: Allergies, Dr. Robert W. Lamson, April 18.

Hoff General Hospital, Santa Barbara: Allergies, Dr. Robert W. Lamson, April 18.

A. A. F. Regional and Convalescent Hospital, Santa Ana: Surgery of the Traumatic Abdomen, Dr. Charles Phillips and Comdr. Gaylord Bates, April 17.

U. S. Naval Air Training Station, San Diego: Problems of Urology, Major P. S. Bennetts, April 20.

U. S. Naval Hospital, Long Beach: Thoracic Surgery, Dr. John Jones and Lieut. Comdr. J. E. Dailey, April 21.

Letterman General Hospital, Presidio of San Francisco: Psychosomatic Medicine, Dr. Karl Bowman, April 21.

Station Hospital, Fort McDowell, Angel Island: Changing Trends in Syphilotherapy, Drs. Norman N. Epstein and Rees B. Rees Jr., April 27.

Illinois

Regional Hospital, Rantoul: Brain and Spinal Cord Injuries, Dr. Loren William Avery, April 18; Conditions Affecting Glucose Metabolism, Dr. Arthur R. Colwell, April 25.

Indiana

Billings General Hospital, Fort Benjamin Harrison: Diseases of the Intestinal Tract: Medical and Surgical Diagnosis and Care, Drs. Walter Palmer and Warren Cole, April 25.

Wakeman General Hospital, Camp Atterbury: Dermatologic Disease, Drs. C. G. Culbertson and Stephen Rothman, April 25.

Kentucky

Fort Knox General Hospital, Louisville: Low Back Pain, Dr. Fremont A. Chandler, April 18; Late Treatment of Burns, Dr. Wayne B. Slaughter, April 18.

Nichols General Hospital, Louisville: Low Back Pain, Dr. Fremont A. Chandler, April 19; Late Treatment of Burns, Dr. Wayne B. Slaughter, April 19.

Nebraska

Station Hospital, McCook Army Air Field: Melena—Those Obscure Hemorrhages from the Bowel, Dr. Julius B. Christensen, April 17; Hematuria, Dr. Leroy W. LaTowsky, April 17; Blood and Its Derivatives, Dr. Raymond L. Borchers, April 17.

Pennsylvania

Deshon General Hospital, Butler: "Blood Dyscrasias" and "The Rh Factor and Erythroblastosis Fetalis," Dr. Mortimer Cohen, April 17.

U. S. Naval Hospital, Philadelphia: Functional Nervous Disorders and Their Differentiation from the Organic, Dr. George Wilson, April 20.

Virginia

Woodrow Wilson General Hospital, Staunton: Arteriovenous Fistula, Dr. William B. Porter, April 18; Penicillin, Capt. Monroe Romansky, April 25.

A. A. F. Regional Hospital, Langley Field: Psychosomatic Medicine, Dr. Salomon Katzenelbogen, April 27; Radiology, Dr. Clayton W. Eley, April 27.

Wisconsin

Station Hospital, Camp McCoy: Heart Disease, Dr. Chester M. Kurtz, April 25.

MATERNITY CARE

Dr. Martha M. Eliot, associate chief of the Children's Bureau, United States Department of Labor, reported recently that three fourths of a million servicemen's wives and infants received care under the emergency maternity and infant care program in the first two years of its operation.

ORGANIZATION SECTION

Washington Letter

(From a Special Correspondent)

April 9, 1945.

Defeat of Manpower Bill Discourages Nurse Draft

Passage of legislation to draft nurses for service with the armed forces has become doubtful since the Senate's overwhelming vote against the compulsory manpower bill. Senator Elbert D. Thomas of Utah, chairman of the Senate Military Affairs Committee, which reported the nurse draft bills, said "I have no heart to push the nurses' bill affecting only a relatively small proportion of women, now that the Senate has turned down the manpower bill and the freezing of workers in war jobs. At least there should be final action on the manpower bill to see if there is any disposition to do anything at all about it before we try to draft nurses." Senator Thomas said that an amendment would be offered to the nurse bill to prevent the draft from being used if enough nurses were recruited voluntarily. Senator Lister Hill of Alabama was named to follow the nurses' bill when it reaches the floor, but action is not expected by the Senate for weeks.

Commander of Veterans of Foreign Wars Comments on Veterans Administration Hospitals

Many veterans leave Veterans Administration hospitals against medical advice because compensation or pensions are reduced during hospitalization, according to Omar B. Ketchum, national legislative representative of the Veterans of Foreign Wars, commenting on charges of inefficiency and neglect in veterans' hospitals. He explained that veterans with no dependents, who are receiving compensation or pension, are limited in the amounts payable during hospitalization. This results in veterans leaving the hospital "before recovery is complete," he said. Illustrating, he said, a service connected disabled veteran, without dependents, who may receive $100 a month is limited to $20 a month in cash benefits while hospitalized. A non-service connected pension is limited to $8 a month for the man without dependents. Mr. Ketchum said that Brig. Gen. Frank T. Hines, veterans' administrator, was to be commended for his forthright and open invitation to veterans' groups to make independent or joint surveys of every veterans' hospital in the country.

Congressmen Receive Psychologists' Peace Plan

All United States Senators and Representatives have received copies of the ten points of human nature which 2,038 American psychologists state must be considered in drawing up plans for an enduring peace. They are included in a statement of "Human Nature and Peace," formed by an informal committee of thirteen psychologists headed jointly by Dr. Gordon W. Allport, chairman, department of psychology, Harvard University, and Dr. Gardner Murphy, chairman, department of psychology, College of the City of New York, both past presidents of the American Psychological Association. Their statement was endorsed by 2,038 members. The ten points which they say must be considered if new wars are to be avoided are: 1. War can be avoided. War is not born in men, it is built into men. 2. In planning for permanent peace the coming generation should be the primary focus of attention. 3. Racial, national and group hatreds can be controlled to a considerable degree. 4. Condescension toward "inferior" groups destroys our chances for a lasting peace. 5. Liberated and enemy peoples must participate in planning their own destiny. 6. The confusion of defeated peoples will call for clarity and consistency in the application of rewards and punishments. 7. If properly administered, relief and rehabilitation can lead to self reliance and cooperation; if improperly administered, to resentment and hatred. 8. The root desires of the common people of all lands are the safest guide to framing a peace. 9. The trend of human relationships is toward ever wider units of collective security. 10. Commitments now may prevent postwar apathy and reaction.

Rabies Control Legislation Proposed for the District of Columbia

So serious has the prevalence of rabid dogs become in the District of Columbia that legislation granting the District commissioners power to carry out a rabies control program through the annual vaccination of dogs has been approved in principle by the Budget Bureau and submitted to the U. S. Public Health Service. Congressional approval is being sought. The bill is designed to eradicate the rabies menace, practically unknown in the Capital before 1942. Penalties for infractions under the bill would range as high as $300 or ninety days in jail. The present legislation was substituted for an earlier bill which would have made annual vaccination a specific law, it being felt that the regulations should be "more flexible." The District Health Department reports that, since January 1, 54 rabid dogs were reported to the department, double the number for the same period last year.

Health Programs Affected by Ban on Labor Royalty

Sidelight to the effort to make it illegal for labor unions to collect "royalties" like those collected by James Petrillo, president of the American Federation of Musicians, and sought by John L. Lewis for his United Mine Workers Union is their effect on health programs supported by such royalties. A bill was presented by Senator Bailey of North Carolina to prevent employer payments to a union for other than union dues. If the bill is made law it would not only upset the Petrillo royalties but it would do away with many negotiated agreements whereby employers agree to pay a small portion of the payroll into health funds administered jointly by the union and the employer. These help to pay sickness and accident benefits, medical costs and death benefits. An increasing number of employers have provision for these contributions in their union contracts.

Extension of Maternity and Infant Care Advocated

Extension of the Emergency Maternity and Infant Care program, now available to wives of enlisted men, to include wives of veterans, widows of service men and infants born after the father has left the service is advocated by the C. I. O. President Philip Murray has made this request to Representative Butler Hare, chairman of the subcommittee of the House Appropriations Committee, before which renewal of the emergency maternity and infant care program is pending. Dr. Martha M. Eliot, associate chief of the Children's Bureau, reports that three quarters of a million service men's wives and infants received care under the program in its first two years.

Surgeon General Parran Warns of Danger to United States from Wartime Epidemic

Danger of a widespread epidemic is emphasized by Surgeon General Thomas Parran, who explained that fatigue, anxiety and grief are bound to lower resistance. Dr. Parran said that the health record of the nation has been surprisingly good despite depleted medical and nursing staffs. Part of the credit, he said, was due to an educated populace which eats wisely and takes scientific steps to care for its children and generally guards against disease.

Capital Notes

Pedro J. Noizeux of the Argentina Automobile Clubs reports that new service stations being set up by his organizations in Argentina include airplane landing fields and in some instances have been used as maternity hospitals.

Dr. Charles-Edward Amory Winslow, director of Yale University School of Public Health, has been asked by the Washington Metropolitan Health Council to survey health and hospital facilities in the Washington metropolitan area.

The National Capital Park and Planning Commission has approved a block size Army Medical Museum and Library on East Capitol Street adjacent to the Library of Congress. The structure has been authorized by Congress.

Five urgent requests that Upshur Street Tuberculosis Hospital remain in operation were received by the District of Columbia commissioners from Daniel L. Seckinger, Gallinger Hospital; Supt. Daniel L. Finucane, Glenn Dale Tuberculosis Sanatorium; Dr. John M. Stanley, Upshur Street; Dr. A. Barklie Coulter, Bureau for Tuberculosis, and District Health Officer George C. Ruhland. Commissioner Guy Mason has called the institution a "flophouse" and urged that it be closed.

Medical Legislation

STATE LEGISLATION

California

Bills Introduced.—S. Constitutional Amendment 15, A. Constitutional Amendment 29 and A. Constitutional Amendment 30 propose, in effect, to submit to the electorate of the state a proposition whether or not the state constitution may be so amended as to direct the legislature specifically by appropriate legislation to create and enforce a system of health or sickness insurance. A. 2157 proposes to enact what is referred to as the California Optional Health Insurance Act, which proposes to provide stated health services to employees, as defined in the act, to be financed out of a health service fund to which both employer and employee contribute.

Delaware

Bill Introduced.—S. Substitute for S. 195 proposes to require the state board of health to make a survey of existing hospitals and health centers in the state and to evaluate the sufficiency of such facilities to supply the health requirements of the state. The board of health is authorized also to accept on behalf of the state and to expend grants or advances made by federal agencies for such purposes.

Illinois

Bills Introduced.—H. 389 proposes to enact a separate chiropractic practice act respecting the examination and licensing of applicants for licenses to practice chiropractic. H. 397 proposes to revise the law relating to the commitment, detention and care of mentally ill persons and to provide for the licensing and regulating of private institutions for the care of such persons.

Maine

Bill Introduced.—S. 405 proposes to prohibit the operation of a hospital, sanatorium, convalescent home, rest home, nursing home or related institution without a license from the department of health.

Michigan

Bill Introduced.—S. 335 proposes to prohibit the operation of a hospital, sanatorium, rest home, nursing home, maternity home, infirmary or related institution without a license from the department of health.

Minnesota

Bill Introduced.—H. 382 proposes to authorize the formation of nonprofit medical service plan corporations to operate medical service plans whereby the services of duly licensed physicians are provided at the expense of the corporations to persons who become subscribers to plans operated by such corporations.

Missouri

Bills Introduced.—H. 283 proposes that whenever an employee is required to subject himself to a physical examination as a condition precedent or subsequent to employment he shall be entitled to have that examination conducted in the state and if rejected for employment or continuance in employment to receive a complete copy of the report of such physical examination without cost to him. H. 280 proposes to permit a county or a group of counties to operate a health center.

New Jersey

Bill Introduced.—A. 380 proposes to enact a separate naturopathic practice act and to create an independent board of naturopathic examiners to examine and license applicants for licenses to practice naturopathy.

Pennsylvania

Bills Introduced.—S. 558 and S. 559 propose, in effect, so to amend the laws permitting the operation of hospital service plans as to permit hospital service plan corporations also to operate medical service plans.

South Carolina

Bill Introduced.—H. 555 proposes to create the South Carolina Hospital Commission, which is to survey existing hospitals and health centers and to evaluate their sufficiency to render adequate health services to the state. The commission is to be authorized to accept on behalf of the state and to expend for such purposes such sums as are made available by the federal government or any agency thereof.

Rhode Island

Bill Introduced.—S. 193 proposes that there shall be no discrimination made by any state department for or against any school of practice of the healing art in any medical plan which involves the expenditure of state funds.

Texas

Bills Introduced.—H. 754 proposes to create in the state department of education a physical restoration service for crippled children under 21 years of age. The service is to make provisions for locating, examining and physically restoring crippled children. H. 797 proposes to prohibit any person from experimenting or operating in any manner on a living dog for any purpose other than healing or curing the dog. Any person who violates this prohibition, the bill proposes, is to be punished by a fine of from one hundred to five hundred dollars and/or by imprisonment in the county jail for from three months to one year.

Virginia

Bills Introduced.—S. 27XX and H. 49XX propose to direct the department of health to survey all hospitals, health centers and related facilities in the state to ascertain the need for additional facilities and to develop plans and programs for the construction of those additional facilities, if any are needed. The department is to be authorized to accept and expend advances or grants of federal funds for such purposes.

Wisconsin

Bills Introduced.—S. 412 proposes to authorize the establishment and administration of a system of compulsory health insurance. A. 498 proposes to appropriate $40,000 for the acquisition of suitable quarters for the maintenance and operation of a state home for children convalescing from rheumatic fever. The bill proposes to appropriate in addition annually $22,500 for the maintenance and operation of this home. A. 510 proposes to limit, except on the prescription of licensed physicians, dentists or veterinarians, the retail sale of ergot, thymus, pituitary, histamine, hydrastis, pilocarpine, physostigmine, pennyroyal, muscatine and slippery elm. A. 524 proposes that the house of delegates of the state medical society shall have the power to establish in the state or in any county or counties of the state a nonprofit plan or plans for the prepayment of sickness care of indigents and low income groups and others through contracts with public officials and with physicians and others. Such plan established as provided is to be subject to all the pertinent state insurance laws except as stated in the bill. Under the present law the state society, or a county society in a manner approved by the state society, may undertake and coordinate all sickness care of indigents and low income groups through contracts of this character. A. 532 proposes to enact a separate naturopathic practice act and to create an independent board of naturopathic examiners to examine and license applicants for licenses to practice naturopathy, defined as "the prevention, diagnosis and treatment of human injuries, ailments and diseases by means of any one or more of the material, physical, mechanical or psychological forces or agencies; it includes all forms of physiotherapy and it excludes the practice of major surgery, obstetrics and the use of narcotics, vaccines and serums."

Bureau of Information

Connecticut is the first state to complete and submit its county summary sheets to the Bureau of Information. Dr. Creighton Barker, Executive Secretary of the Connecticut State Medical Society, returned this information, which was exceptionally comprehensive. In Connecticut there is a close liaison between the state society and the counties, so that a complete system of records is maintained in the state medical society headquarters.

The following table presents some of the data on each county in Connecticut. The number of persons per telephone is used as one index of the economic status of the area. Many physicians over 65 years of age are carrying on large practices and are doing much to maintain the health of communities. They are not included in computing the physician-population ratio, however, as the future needs of the communities will be largely dependent on younger physicians.

Connecticut

County[1]	Principal Cities[2]	Population	Physicians Under 65	Persons per Physician	Persons per Telephone[3]
Fairfield		**434,265**	328	1,324	6.7
	Bridgeport	147,121			
	Stamford	47,938			
	Norwalk	39,849			
Hartford		**474,286**	373	1,272	7.3
	Hartford	166,267			
	New Britain	68,685			
	Bristol	30,167			
Litchfield		**87,662**	48	1,826	5.6
	Torrington	26,988			
	Winsted	7,674			
Middlesex		**58,635**	38	1,543	7.2
	Middletown	26,495			
New Haven		**477,763**	347	1,377	7.4
	New Haven	160,605			
	Waterbury	99,314			
	Meriden	39,494			
New London		**129,384**	74	1,748	8.4
	New London	30,456			
	Norwich	23,652			
Tolland		**32,327**	12	2,694	13.2
	Rockville	7,572			
Windham		**54,080**	19	2,846	6.7
	Willimantic	12,101			
	Putnam	7,775			

1. Bureau of Census, estimated population 1943.
2. Bureau of Census, population 1940.
3. Based on 1940 figures, Am. Tel. & Tel. Co.

Since veteran medical officers are concerned primarily with the problem of becoming reestablished in practice, the greatest number of letters coming to the Bureau of Information ask what areas need physicians. Other inquiries deal with matters of education and licensure. In order to reply satisfactorily, accurate knowledge of needs and economic factors that obtain in each locality must be available.

The economic data are supplied by the summary sheets when completely filled out. This includes the ratio of doctors in active practice to population, the number of telephones in relation to the population, general information about the location, climate and industrial activities, and specific needs of the county as shown by pertinent facts given under the section "Remarks" on the summary sheet. With this information available, it is readily possible for the medical officer to make an initial selection of areas in which he might like to practice. The further investigation through the state and county societies is thus greatly facilitated and much unnecessary correspondence and perhaps travel may be avoided. In many communities vacancies are being held open for physicians now in military service. The number of physicians listed may therefore be misleading, and, consequently, direct correspondence with the county medical society will always be necessary.

Official Notes

DOCTORS LOOK AHEAD: CORRECTED SCHEDULE

During April and the first week in May, Doctors Look Ahead will include the following programs:

April 14. Cancer, with special reference to education for youth. Dr. Frank L. Rector, cancer consultant, Michigan Department of Health, will be the speaker.

April 21. American Spas (instead of the title previously announced). The speaker will be Dr. Walter S. McClellan, chairman of the Committee on Health Resorts, American Medical Association. Dr. McClellan will speak from New York.

April 28. Battle Fatigue (previously announced for April 21). The speaker will be Major General George F. Lull, Deputy Surgeon General, U. S. Army, who will speak from Washington, D. C.

May 5. Child Health. Speaker, Dr. George K. Anderson, Secretary of the Council on Foods and Nutrition, American Medical Association.

Doctors Look Ahead will be heard on one hundred and twenty-three stations of the National Broadcasting Company network each Saturday at 4 p. m. Eastern War Time (3 p. m. Central War Time, 2 p. m. Mountain War Time and 1 p. m. Pacific War Time). Some stations may record the program and broadcast it at a time which suits their schedule better. Local newspaper radio announcements should be consulted.

Owing to radio network conflicts the program for April 28 will be at 2 p. m. Eastern War Time (1 p. m. Central War Time, 12 noon Mountain War Time and 11 a. m. Pacific War Time).

Woman's Auxiliary

New Jersey

Dr. Royal A. Schaaf, president of the Academy of Medicine of Newark, Dr. Louis Schneider, president of the Essex County Medical Society, Mr. Philip Cummings, world traveler and lecturer, and Dr. Robert A. Lampert, author of "Yankee Doctor in Paradise," were guest speakers at the Essex County auxiliary meeting recently. Mr. Cummings and Dr. Lampert told of living conditions in the South Pacific, stating that deaths from tropical diseases far exceeded those inflicted by the Japanese.

At the November meeting of the Mercer County auxiliary, more than a thousand surgical dressings were folded.

Pennsylvania

The Woman's Auxiliary to the Philadelphia County Medical Society took part in the meeting of the county medical society, January 9. Certificates were presented to seventeen doctors who have been in practice for fifty years. Dr. William H. Perkins, dean of Jefferson Medical College, Dr. William Pepper, dean of the University of Pennsylvania, Dr. William Parkinson, dean of Temple University, and Dr. Francis Borzell were the guest speakers.

The auxiliary reported a donation of $500 to the Aid Association and $50 to the wounded soldiers at Valley Forge Hospital.

Texas

The Woman's Auxiliary to the State Medical Association of Texas has established a Woman's Auxiliary library endowment fund for the development of a library for the state medical association as a tribute to the doctors of Texas. The first donation ($1,000) to this fund was made by Mr. and Mrs. G. A. Ray of Pettus, Texas, in memory of their daughter. Through donations contributed by all the presidents who have served the Woman's Auxiliary, plus donations made by those husbands of Auxiliary presidents who have served as president of the state medical association, a second fund of $1,000 has been added and is to be known as "The Presidents' Library Endowment Fund."

At the first fall meeting of the Hunt-Rockwell-Rains counties Woman's Auxiliary the war activities report showed that approximately 78,000 hours have been given to war work during the past year. Mrs. S. E. Thompson, state president, addressed the meeting and asked for continued support of the student loan fund maintained for the purpose of assisting worthy students who have completed at least their second year in a standard medical school.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

CALIFORNIA

Survey Shows Need for Educational Program for Spastic Children.—Need for a state educational program for spastic children in California was shown by a survey made at the request of the legislature by Lois Shulz, graduate student, under the supervision of Frank N. Freeman, Ph.D., dean of the School of Education on the Berkeley campus of the University of California, according to the University of California *Clip Sheet*, April 3. More than 1,200 children with cerebral palsy, usually called spastics, were known to school authorities. These had disabilities ranging from minor muscle involvement to silent speech, partial sight or hearing and inability to walk, help or feed themselves. Low mental capacity does not necessarily accompany these, it was stated. Less than 500 of these children were reported to be in school. Of these, the report indicated, it is evident from the many reports from teachers that the spastic child experiences much difficulty in learning and requires a large amount of individual attention from specially trained teachers.

Permanente Foundation Research Fellowships.—The Permanente Foundation will offer a limited number of fellowships for clinical research in the fields of medicine, surgery and related specialties. Appointments will be awarded to graduates of recognized medical schools who have completed an approved internship. Fellowships will be offered for the study of specifically announced problems in clinical medicine or surgery. Opportunities will be present for study in associated subjects and related fields and for resident bedside training when desired. A limited number of fellowships will also be available to qualified physicians who present a suitable research problem of their own choosing. A detailed outline of the investigational study which the applicant desires to undertake should be presented to the Permanente Fellowship Committee for approval. Constant supervision, guidance and teaching will be furnished by an assigned advisory committee. A thesis covering the year's work will be required at the completion of the fellowship. At the conclusion of the research fellowship, opportunities will be available to men for extension of the fellowship or for positions on the resident or attending staff of the Permanente hospitals. Research fellows will receive $225 monthly, plus maintenance. Fellowships for the year 1945 in the field of internal medicine will cover cardiac status in pneumonia and the evaluation of recent advances in peptic ulcer therapy. Applications should be addressed to the Chairman, Fellowship Committee, Permanente Foundation Hospital, Broadway and MacArthur Boulevard, Oakland 11, Calif.

DISTRICT OF COLUMBIA

Course in Physical Medicine.—The committee on postgraduate education of the Medical Society of the District of Columbia opened a three lecture course in physical medicine, April 9, with a talk by Francis O. Schmitt, Ph.D., head of the department of biology and the department of biologic engineering of the Massachusetts Institute of Technology, Cambridge, on "The Physical Basis of Physical Medicine." Dr. Frank H. Krusen, head of the section on physical medicine, Mayo Clinic, Rochester, Minn., will give the second lecture, April 16, on "The Future of Physical Medicine," and Dr. George M. Piersol, director, division of physical medicine, and professor of medicine, Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania, Philadelphia, the third lecture, April 23, on "Clinical Aspects of Physical Medicine."

ILLINOIS

Changes in Health Officers.—Dr. James T. Googe, health officer of district number 6 with headquarters at Gilman, has been appointed to a similar position with the McDonough and Fulton County unit, succeeding the late Dr. Cyrus P. McRaven, Macomb.——Dr. Sidney I. Franklin on March 21 was appointed health officer of the recently formed DuPage County Health Department (THE JOURNAL, Dec. 9, 1944, p. 970).——Dr. Bernard E. Bolotoff has been named health officer of Rockford, succeeding Dr. Hobart W. Edson, who held the position for fifteen years.

Chicago

Brigadier Cairns to Give Mayo Lecture.—Brigadier Hugh W. B. Cairns, Nuffield professor of surgery, Oxford University, and consultant in neurologic surgery to the Royal Army Medical Corps, will deliver the Charles H. Mayo Lecture in Surgery of Northwestern University in the Archibald Church Library of the medical school at 4 p. m., April 20. His subject will be "The Treatment of War Wounds of the Head."

Course in Electrocardiography.—The annual intensive two weeks course in electrocardiography for graduate physicians will be given at Michael Reese Hospital under the personal direction of Dr. Louis N. Katz, director of cardiovascular research, August 20-September 1. Group and individual instruction will be given, and the course is open to beginning and advanced students in electrocardiography. Further information and a copy of the program may be obtained on application to the cardiovascular department, Michael Reese Hospital, Chicago 16.

The Capps Prize.—The Institute of Medicine of Chicago offers its annual Joseph A. Capps Prize of $400 for the most meritorious investigation in medicine or in the specialties of medicine. The investigation may be also in the fundamental sciences, provided the work has a definite bearing on some medical problem. Competition is open to graduates of Chicago medical schools who completed their internship or one year of laboratory work in 1943 or thereafter. Manuscripts must be submitted to the secretary of the Institute of Medicine of Chicago, 86 East Randolph Street, Chicago 1, not later than December 31.

Arthur Compton Honored.—Arthur H. Compton, Sc.D., dean of the division of physical sciences and chairman of the department of physics, University of Chicago, has "received the Washington Award for devoted, unselfish and preeminent service in advancing human progress, in recognition of 'his research and teaching in the physical sciences, increasing man's knowledge of the action of x-rays and cosmic rays,'" according to *Science*. Members of the commission of award represent the American Society of Civil Engineers, the American Institute of Mining and Metallurgical Engineers, the American Society of Mechanical Engineers, the American Institute of Electrical Engineers and the Western Society of Engineers.

Physicians Exonerated in Malpractice Accusation.—The medical committee of the Illinois Department of Registration and Education on April 2 exonerated Drs. Edward L. Cornell and Ralph A. Reis on charges of alleged gross malpractice in connection with the death of a woman in Southtown Hospital, Nov. 11, 1943. Newspapers reported that evidence taken at a department hearing showed that the two physicians had been brought into the case as obstetric specialists after complications had set in and the woman had been seized with convulsions in the expected birth of her baby, which also died. In voting unanimous vindication for Dr. Cornell and Dr. Reis, the committee overruled the contention of Attorney John Tyrell, representing the department, that the two physicians, as members of the joint maternal welfare committee of Cook County, were members of a "supergovernment" appointed by the board of health. Since the committee was organized in February 1938 to furnish expert consultation in abnormal births in Chicago hospitals, the maternity death rate for the city has dropped approximately 60 per cent in such cases, records disclose.

KENTUCKY

Accident to Physician.—Dr. Harry R. Mendelsohn, Covington, and his wife were injured recently when a streetcar struck their automobile. Newspaper reports implied that the streetcar operator had ignored a red traffic light.

Malaria Control Program.—DDT will be used in a malaria control program for rural areas of McCracken, Graves, Hickman and Fulton counties in accordance with plans adopted by a meeting in Paducah recently. The control program is sponsored by the U. S. Public Health Service, the state department of health and the local county health organizations.

Proposed Health Center in Owensboro.—The Owensboro board of city commissioners and the Daviess County Fiscal Court agreed at a joint meeting to appropriate approximately $50,000 each toward the construction of a proposed health center in Owensboro. The federal government will supply the remaining $50,000 if the city-county application is approved.

MICHIGAN

Memorial Hospital Dedicated.—Formal ceremonies March 4 marked the dedication of the Ontonagon Memorial Hospital, Ontonagon. The new institute was dedicated to the memory of young men and young women of Ontonagon Township who have served, are now serving or will serve in the armed forces during World War II.

New Professor of Anatomy.—Gordon H. Scott, Ph.D., professor and head of the department of anatomy, University of Southern California School of Medicine, Los Angeles, has been appointed professor and head of the department at Wayne University College of Medicine, Detroit. Dr. Scott received his Ph.D. at the University of Minnesota, Minneapolis.

Gifts to Wayne University.—A grant of $1,500 has been given to Wayne University by Frederick Stearns and Company to be used in the study of amino acids under the direction of William M. Cahill, Ph.D., Detroit, assistant professor of physiologic chemistry at the college of medicine. Dr. James Milton Robb, Detroit, has contributed $1,000 for the use of the Alpha Omega Alpha scholarship and lectureship foundation at the college of medicine (THE JOURNAL, May 20, 1944, p. 220).

NEBRASKA

Voluntary Health Service in School System.—Credit is ascribed to Dr. William H. Betz, Omaha, in building an unusual health unit in the Bellevue School system. According to the Omaha *World-Herald*, in 1937, after appearance before the school board and overcoming objections from numerous sources, Dr. Betz was given a tiny office and a cot in the combination high and grade school at Bellevue. Currently, with the cooperation of the school board and community, the office has expanded to include an especially equipped clinic with 2 beds, a pickup cot, examination chairs, medicine chests and file cases containing the complete health record of every pupil enrolled in the Bellevue schools. The operations of the clinic now include immunization and inoculation with parental consent of every child in the school. A full time nurse is employed whose duties include educational work, both with teachers and with pupils. Each teacher is given instruction in the common symptoms of childhood ailments. After room inspection each morning children with suggestions of colds, suggestive rashes or unusual paleness are sent to the school nurse for a check-up. If the illness is serious the child is put to bed, the parents are called and the child is referred to his family physician. In a statement to the press Dr. Betz emphasizes that beyond first aid the child is not treated or prescribed for. He is always referred to his own doctor. It is often necessary to keep a sick child at the clinic all day, particularly now with so many mothers working. A child is never sent home until the parents are consulted. If the parents cannot call for the child, he is taken to his home or physician by the school nurse. The school expends from $1,100 to $1,200 annually for maintenance of the clinic, with a $400 emergency fund. A percentage of the cost is borne by the state health department. Dr. Betz's services are purely voluntary.

NEW YORK

Local Society on Psychosomatic Medicine.—Announcement has just been received of the recent organization of the Albany Society for the Advancement of Psychosomatic Medicine with Drs. Robert R. Faust, Albany, president and Alva Gwin, Albany, secretary.

Christopher Parnall Resigns at Rochester General Hospital.—Dr. Christopher G. Parnall has resigned as medical director of the Rochester General Hospital, Rochester, effective October 1, and plans to devote his time to consultation "as a free lance" in hospital planning and construction. Dr. Parnall has held the position for twenty-one years.

New Health Officer Named Professor of Child Hygiene.—Dr. Albert D. Kaiser, who was sworn in as health officer of Rochester March 29, has also been given an appointment as professor of child hygiene at the University of Rochester School of Medicine and Dentistry. Dr. Kaiser, who has been associate professor of pediatrics, was given the full professorship in recognition of his long service to the school and his new position of health officer, in which he succeeded Dr. Arthur M. Johnson (THE JOURNAL, March 3, p. 534).

Cancer Teaching Day.—April 26 has been designated cancer teaching day in a cooperative program at the Hotel Statler, Buffalo, by the Medical Society of the County of Erie, Buffalo Academy of Medicine, eighth district branch of the Medical Society of the State of New York, University of Buffalo School of Medicine, state medical society and the division of cancer control of the state department of health. Among the speakers will be Drs. Donald Guthrie, Sayre, Pa., on "Diagnosis and Surgical Treatment of Carcinoma of the Breast" and Dr. Lloyd F. Craver, New York, "What Can the General Practitioner Do About Lowering Cancer Mortality?" Speakers at the evening meeting will be Drs. Hayes Martin, New York, on "Diagnosis and Curability of Intraoral Cancer" and John H. Garlock, New York, "Carcinoma of the Colon."

National Affiliation Dissolved with Local Cancer Group.—On March 23 the American Cancer Society issued a "public notice" that the affiliation with the New York State Committee for the Control of Cancer had been officially severed. According to the Rochester *Democrat and Chronicle*, Clarence C. Little, Sc.D., managing director of the American Cancer Society, stated that the break with the state committee occurred when the latter failed to meet a proviso that its chairman shall be appointed by the national society. Action severing the relationship was taken by unanimous action of the executive committee of the national group, Oct. 6, 1944, it was stated. No official appointment of chairman had been made since this date and no one authorized by the national society had held office and, therefore, continuation of the state society's activities had been unauthorized since the action of the national group.

Governor Signs Blood Bank Bill.—A state mobile unit will be established by the department of health as the result of Governor Dewey signing a bill appropriating $100,000 to finance the collection and distribution of human blood and its derivatives for the treatment of the sick and injured in the state (THE JOURNAL, March 10, p. 606). The program will appeal to citizens in communities not reached by the present Red Cross program, according to the Rochester *Times-Union*, and will permit the creation of blood collection and distribution programs in areas of the state where no such program now exists. In announcing that the program had been developed with the assistance of the Red Cross, Governor Dewey also made public the following statement concerning the measure by the state medical society: "It is considered that the establishment by the health department of a program for the collection, storage and distribution of human blood and blood derivatives, including therapeutic and diagnostic serums, is most important in the treatment of sick and injured persons and the prevention of disease."

Urge Creation of Division of Mental Hygiene.—The Westchester County Board of Health on March 22 voted unanimously to request the board of supervisors to provide $66,000 a year to operate a division of mental hygiene within the health department. According to the New York *Times* the division would maintain at least six clinics to serve the general public, with special attention to the psychiatric needs of children, war veterans and veterans' families. The proposal was drafted by the recently organized Westchester Mental Hygiene Association, which announced to the press that as far as known the plan was the first in the nation that would afford under public auspices complete county coverage in terms of accessibility of service. Each clinic would have resident social workers, collaborating with itinerant psychiatrists, psychologists and case supervisors. Dr. Edwin G. Ramsdell, White Plains, chairman of the board of health, appointed a committee to draft the administrative details. The mental hygiene association said the cost from May 1 to the end of the year would be $46,200 and that nonveterans receiving treatment would be charged fees in accordance with ability to pay.

New York City

The Rothschild Lecture.—Dr. Frank H. Lahey, Boston, will deliver the Rothschild Lecture at Beth Israel Hospital, April 24, on "The Management of Thyroid Disease: Some of the New Developments, Including a Review of Our Experiences with Thiouracil."

Plan for Library Expansion.—A committee of representatives of several large chemical and pharmaceutical concerns has been organized to raise $500,000 for "badly needed expansion" of the library of the New York Academy of Medicine, the New York *Times* reported March 21. The fund would permit construction of a nine floor addition to the stack room, which will increase capacity to 374,000 volumes. It would also provide for a new catalogue of 2,800,000 cards and improved handling, delivery, photostating and bibliographic service.

Outbreak of Trichinosis.—An outbreak of trichinosis was recently announced in New York, involving 32 residents of Manhattan, Brooklyn and the Bronx who ate mettwurst and similar products made from incompletely processed pork. The pork products were manufactured by a wholesaler in the Bronx and distributed to thirteen retailers throughout the city. In spite of the fact that the department of health requires the holding of pork used in these products at 5 F. for a period of at least

twenty days, the manufacturer did not hold the pork at the low temperature necessary to prevent the disease from occurring. On March 14 inspectors of the health department visited the Bronx plant and subsequently placed an embargo on its pork products. A similar embargo was placed at thirteen retail stores on products from the Bronx manufacturer.

Physician Named in Bandage Swindle.—On March 29 the government filed a forty-four count criminal information against Dr. Abraham Freitag charging that he made more than $500,000 in the black market on materials allotted to him for bandages for wounded servicemen, according to the Chicago *Sun*. The physician is also said to be an inventor of a bandage cut on the bias, and one of his companies, the Bias Coating Corporation, was said to be named in the information. It was also stated in the information that Freitag diverted into the black market 2,996,340 yards of cotton sheeting, muslin, percale and cotton print. He was said to have paid from 10 to 12 cents a yard for these materials, selling them for from 28 to 35 cents a yard to manufacturers of curtains, handkerchiefs, infants' wear, aprons and house dresses. According to the information, Dr. Freitag's company used for bandages only 1,000,000 yards of the 2,996,340 yards of material allotted by the WPB.

United Medical Service Holds First Annual Meeting.—Formal election of officers and board members who have been serving in a temporary capacity since the foundation of United Medical Service, Inc., in June 1944 marked the first annual meeting, April 2, at 370 Lexington Avenue. The following officers were elected to serve for one year: Dr. Nathan B. Van Etten, chairman of the board of the executive committee; Rowland H. George, president; Dr. Charles Gordon Heyd and Frank Van Dyk, vice presidents; Paul G. Drescher and Harry Sesan, assistant vice presidents; John S. Linen, treasurer; Dr. De Witt Stetten, secretary; James de Socarras, assistant secretary, and Dr. Frederick E. Elliott, director of medical services. In addition, a number of board members and chairmen of standing committees were chosen. The United Medical Service was created early in 1944 following approval by the state medical society (THE JOURNAL, May 27, p. 296, and Oct. 7, 1944, p. 377, and Feb. 10, 1945, p. 347).

Indictments Reveal Narcotics Ring.—Seventeen men were indicted as the controlling members of a narcotics ring that has its source of supply in secret, illicit poppy fields in Mexico, the New York *Times* stated March 27. Charges were made in eight indictments opened in federal court at the instance of United States Attorney John F. X. McGohey, who had obtained the true bills secretly March 5 on the basis of extensive investigations made by agents of the Treasury Department. It was stated that the defendants obtained opium from Mexico and processed it in New York, mixing it with milk sugar. The stuff they sold to other distributors had a narcotic content of 70 per cent. At $600 an ounce they sold 3 to 4 million dollars' worth of this. The *Times* stated that the dealers to whom the defendants sold the product added more sugar and as the narcotic passed through the successive stages of distribution it got weaker and weaker. Addicts arrested in New York were found to possess supplies of less than 1 per cent narcotic content and yet were paying as much as $30 an ounce for the denatured drugs, it was reported.

Central Bureau for Jewish Medical and Welfare Agencies.—A central bureau for the Jewish aged is now being organized in New York to coordinate the services of all existing medical and welfare agencies for the care of aged Jews. According to the New York *Herald Tribune*, in addition to organizing present facilities the bureau also will serve in an advisory capacity with a central information service referring individuals to the institutions providing the specialized care they need, and as a research agent. The bureau will investigate additional institutional resources for the chronically ill, nursing homes, convalescent homes, special medical clinics, boarding homes, visiting housekeeping service, home medical care and group work opportunities. The bureau is sponsored by thirty-five organizations which provide the bulk of medical and welfare services available to aged Jews, and twenty of these, including Mount Sinai Hospital, Montefiore Hospital for Chronic Diseases and Bronx Hospital, have already agreed to cooperate. The Federation of Jewish Philanthropies of New York has agreed to supply the main financial support of the bureau during its experimental stage, though each cooperating institution also will be expected to support the bureau. The autonomy of the individual agencies will be preserved.

Physicians to Be Asked to Share Facilities with Returning Colleagues.—A new service designed to help discharged army and navy physicians get offices, homes, furniture and scientific equipment was announced March 26 by the Medical Society of the County of New York. Plans have been approved by the directors of the society. The new program, which is under the sponsorship of the society's new committee on public relations, includes finding "part or full time employment in governmental or private service" and "opportunities for postgraduate instruction." A Medical Veteran's Aid Fund, to be raised through donations of members (THE JOURNAL, July 15, 1944, p. 801), would give non-interest bearing small loans to tide a veteran over until his government appropriations arrive. According to an announcement in the New York *Times*, 1,700 of the 6,200 members of the society are in military service. The difficulty in finding offices to reestablish practice of fifty members of the society thus far discharged has indicated that steps must be taken now before the problem becomes acute, it was stated. According to a report in the *Times*, a major function of the service would be to survey doctors and housing facilities according to areas, to assist medical men in resuming practice in neighborhoods where they were formerly located. A new trend in the sharing by doctors of offices and equipment is predicted. Advocating "doubling up," individual doctors' offices and full time use of equipment were called "wasteful." *New York Medicine* will carry a questionnaire asking doctor readers willing to share office, equipment and telephone service to fill out the form and mail it to the new service. The questionnaire is patterned after one devised by Dr. Charles F. McCarty, Brooklyn, director of the Kings County Medical Society, which appears in its bulletin every other month.

OHIO

Medical Academy to Buy Controlling Interest in Journal Publishing Company.—On March 6 the Academy of Medicine of Cincinnati voted unanimously in favor of a motion to approve the proposal of the council to buy a controlling interest in the Academy Journal Publishing Company. Based on this action, the council has adopted a series of resolutions which were necessary to complete the transaction. As soon as the transfers can be made, the Academy of Medicine will own at least 100 of the 183 shares of *Journal* stock outstanding, assuring a majority control of the editorial and business policies of the *Journal*. Dr. Eugene B. Ferris Jr., assistant professor of medicine, University of Cincinnati College of Medicine, will act as editor in chief for a three year period. Pending submission of an amendment to the academy by-laws to set up a permanent editorial board or committee, a temporary board will be appointed by the president of the academy and Dr. Ferris to assume immediate charge of the *Journal*. The publishing company's board of directors will adopt its own set of resolutions to carry out this change in management procedure. It is expected that, starting with the May 1945 issue, the *Journal* will become the official organ of the Academy of Medicine and its policies would then be under academy control. At the start, an effort will be made to enlarge the scope of the *Journal* to include news of academy actions and of academy members, college of medicine, current news about the faculty, students and alumni, scientific material presented at academy meetings and at hospital staff meetings, sectional meetings, college of medicine conferences and clinics, and news of developments in city and county public health fields and that of the public health federation's various agencies. Scientific material used will be aimed to meet the needs of physicians in active practice.

PENNSYLVANIA

Personal.—Dr. and Mrs. Frank J. Kessler, Easton, recently celebrated their golden wedding anniversary.——Dr. David W. Thomas observed his twenty-fifth anniversary as chief surgeon at the Lock Haven Hospital, Lock Haven, February 16. A dinner was held in his honor.

Society News.—Dr. Harry E. Bacon, Philadelphia, will address the Dauphin County Medical Society in Harrisburg, April 17, on "Carcinoma of the Rectum and Sigmoid."——Dr. James Flexner, White Plains, N. Y., will speak before the Lackawanna County Medical Society, Scranton, April 17, on "Physiological Approach to Gastroenterology as It Influences Etiology and Therapy." Dr. Matthew S. Ersner, Philadelphia, will address the society, April 24, on "Modern Conception of Intranasal and Extranasal Deformities Beginning with Intrauterine Life—Delivery and the Development from Childhood to Maturity."

Philadelphia

Seminars on Mental Hygiene.—The Philadelphia County Medical Society recently initiated a group of seminars on psychiatric subjects. The first group of lectures, which are designated for members of the county medical society, was given March 29 by Drs. Oliver Spurgeon English on "The Depressions" and Arthur P. Noyes, Norristown, "Schizophrenia."

RHODE ISLAND

Reginald Fitz Presented with Chapin Medal.—The Rhode Island Medical Society at its midwinter meeting, February 5, presented the Charles V. Chapin Memorial Award to Dr. Reginald Fitz, Boston. In 1944 the Providence City Council passed an ordinance creating a standing committee of the council to be known as the Dr. Charles V. Chapin Memorial Award Committee. A stipulation in the ordinance requires the provision of a suitable medal to be presented to the speaker who delivers the Chapin Memorial Oration during the annual meeting of the Rhode Island Medical Society. Dr. Reginald Fitz was selected by the committee on arrangements to deliver the Chapin Oration during the meeting of the state society in Providence in May 1944, but since the medal was not prepared at the time he gave his address the actual presentation was held up until the recent meeting. The presentation was made by the chairman of the city council committee.

TEXAS

Lectureship Named for Edward Cary.—The Edward H. Cary lectureship was established recently at the Southwestern Medical College of the Southwestern Medical Foundation, Dallas, as an expression of appreciation to Dr. Edward H. Cary, president of the Southwestern Medical Foundation, for his work in connection with the foundation and the medical school. It is anticipated that three lectures will be presented annually, the first of which has already been given by Dr. Tom D. Spies, associate professor of medicine, University of Cincinnati College of Medicine.

Pediatric Conference.—A postgraduate course in pediatrics will be held at the University of Texas Medical Branch, Galveston, May 14-19, under the auspices of the University of Texas child health program and the maternal and child health bureau of the Texas State Board of Health. The course will be limited to forty physicians, with tuition furnished by the state board of health. Preference will be given to physicians of Texas recently returned from the armed services and to physicians participating in the various well baby conferences in Texas. The faculty will include leading pediatricians from the Yale, New Haven, Conn., University of Rochester, New York, and Louisiana State University, New Orleans, schools of medicine, in addition to the staff of the University of Texas Medical Branch. Application blanks for registration may be obtained from Dr. Arild E. Hansen, Galveston.

Millions Given to Local Hospitals.—Mr. and Mrs. H. R. Cullen, Houston, on March 1 announced gifts of one million dollars each to Methodist, Memorial and Hermann hospitals, Houston, and one million dollars to the Episcopal Church for the construction of a hospital. The *Medical Record and Annals* announces the distribution of the funds as follows: Memorial Hospital announced that the money will be used for construction of a nurses' home and school on a tract near the hospital, recently donated by Mrs. J. W. Neal, as part of an expansion program in which other gifts will be included. Methodist Hospital is considering the use of the Cullen gift as basis for constructing a new hospital on a new site. The Episcopal Church has plans drawn for a hospital which will be constructed in the new medical center, between Hermann Hospital and the Navy Hospital now under construction. Hermann Hospital will use the Cullen gift in an expansion program which will total $4,500,000 and include a new hospital building with about 450 beds, an office building for doctors and a nurses' building to provide space for the school and residence for nurses.

WEST VIRGINIA

Changes in Health Personnel.—Hi Eastland Steele, who has been with the bureau of vital statistics, Bureau of the Census, Washington, D. C., for nearly ten years, has been appointed director of the division of vital statistics in the health department to succeed Dr. Martin B. Woodward, who resigned to accept a place on the staff at Washoe County General Hospital, Reno, Nev. (THE JOURNAL, January 27, p. 238). Robert L. Smith, P. A. Surg., U. S. Public Health Service, Los Angeles, has been appointed assistant director of the bureau of tuberculosis. For the past two years he has been with the division of tuberculosis control, U. S. Public Health Service, at Bethesda, Md. Recently he completed a course in the school of public health at the University of Michigan.

State Health Board Increases Scope.—Under a bill passed recently the state health department shall have advisory medical supervision of all the state emergency, tuberculosis and mental hospitals. The state board of control will continue to exercise full control of the business and fiscal affairs of all the institutions. Under the old law the state health department had the medical supervision of tuberculosis sanatoriums only. The new law authorizes the state health commissioner to establish a bureau of mental health and to conduct mental hygiene clinics, utilizing the professional services of the state mental hospitals. He will cooperate with the state department of education and other school authorities in making available to schools the services of psychologists and psychiatrists, by conducting educational programs and by other means approved by the public health council.

GENERAL

Sterling Drug to Bid for Shares of Winthrop Chemical Company.—After announcement by the Alien Property Custodian March 21 that one half of the capital shares of Winthrop Chemical Company, Wilmington, Del., would be auctioned on April 23, James Hill Jr., New York, president of Sterling Drug, Inc., owner of the remaining Winthrop shares, disclosed that Sterling would bid $9,500,000 for the custodian's holdings, newspapers announce.

Association for the Advancement of Science.—Charles F. Kettering, Sc.D., Dayton, Ohio, was elected president of the American Association for the Advancement of Science, succeeding Dr. Anton J. Carlson, Chicago. Among vice presidents are Dr. Warfield T. Longcope, Baltimore, medical science; Frank D. Kern, Sc.D., State College, Pa., zoology; Alfred I. Hallowell, Ph.D., Evanston, Ill., anthropology; Florence L. Goodenough, Ph.D., Minneapolis, psychology, and Henry Eyring, Ph.D., Princeton, N. J., chemistry. Malcolm H. Soule, Sc.D., Ann Arbor, Mich., has been reelected secretary of section N (medical science) of the association.

Sale of Surplus Drugs Held Menace to Public Health.—The "apparently indiscriminate release of enormous quantities" of surplus war supplies of potent medicines and drugs by the procurement division of the Treasury Department represents "a grave menace" to public health, the board of control of the National Wholesale Druggists' Association warned March 14 in a bulletin to the membership following a meeting in the Hotel Pennsylvania. According to the New York *Herald Tribune*, March 15, as evidence of the dangers involved, E. Allen Newcomb, secretary of the association, is reported to have said that on a recent visit to a storage depot he saw several thousand bottles of hydrogen peroxide which had evaporated to such an extent in government storage that the antiseptic qualities of the fluid had been lost. He cited the sale after World War I of condemned ether which finally found its way into hospitals, where it was blamed for several deaths. Under present procedures, Mr. Newcomb said, drugs are sold by the government to the highest bidder, and the only protection to the public is the label on the goods. The meeting yesterday adopted a resolution declaring that "potent drugs and medicine should be distributed only through those who are thoroughly familiar with the medicinal qualities of such products."

Edwin Cohn Receives First Passano Foundation Award.—As the result of a nationwide poll among leaders in medical sciences, Edwin J. Cohn, Ph.D., professor of biochemistry, Harvard Medical School, Boston, has been chosen as the first winner of the Passano Foundation Award, presentation of the $5,000 cash prize to be made in the Osler Hall of the Medical and Chirurgical Faculty of Maryland, Baltimore, May 16. Dr. Cohn, who is distinguished for research on the fractionation of blood, will read a paper concerning the applications of his work on blood plasma to the field of clinical medicine during the presentation ceremony. Mr. Edward B. Passano, chairman of the board of the Williams & Wilkins Company, will present the award. The Passano Foundation was established in 1944 by the Williams & Wilkins Company, medical publishers of Baltimore, to aid any way possible the advancement of medical research, especially research that bears promise of clinical application. The foundation was named for Mr. Edward B. Passano, who has been identified with the development of scientific publishing for more than thirty-six years (THE JOURNAL, Feb. 19, 1944, p. 521). Drs. Emil Novak, associate professor of obstetrics, Johns Hopkins University School of Medicine, Nicholson J. Eastman, professor of obstetrics at Johns Hopkins, and George W. Corner, director of the Embryological Laboratory of the Carnegie Institution of Washington, represent the medical profession on the board of directors of the foundation. Dr. Cohn received his doctor of philosophy degree at the University of Chicago in 1917.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 11, 1945.

Rehabilitation

The vast scale of war injuries, not only in the fighting forces but also in civilians, in consequence of bombing from the air has produced a corresponding problem of rehabilitation. More than 250 hospitals are now using rehabilitation methods, which include physical therapy, remedial exercises, outdoor games and handicrafts. This is nearly twice as many as a year ago, when the Ministry of Health made a special appeal to civilian hospitals to establish a rehabilitation department as soon as possible. Rehabilitation is a service which aims at securing quicker and more complete recovery not only in accident cases but also in almost every form of illness and disability. Passive physical therapy, which includes heat, massage and electrotherapy, was formerly the main method of rehabilitation in most hospitals. This is largely giving place to active movements by the patients themselves. These include remedial exercises to strengthen the body generally and to restore function to the affected region, organized games to promote freedom and spontaneity of movement, and occupational therapy to give regular and gentle exercise to particular groups of muscles and to serve also as a form of mental relaxation. Lectures, discussions, musical entertainments and books provide mental stimulus during the rest periods.

Special attention is paid to the psychologic and economic aspects of the problem. The patient's full confidence and cooperation need to be secured; his personal and domestic anxieties must be allayed and, above all, if he is discharged before fit to return to work he must not be allowed to drift. The goal is complete restoration of capacity and resettlement in satisfying work. To this end close touch is maintained with the Ministry of Labor so that he may be assisted to take up suitable employment or, if necessary, to attend a vocational training center. Some hospitals have obtained the use of local halls for the expansion of their work; others have been supplied with huts for remedial exercises.

Most of the hospitals have appointed a member of the staff as a rehabilitation medical officer. Many such officers have attended special courses at selected rehabilitation centers. Lectures and demonstrations have been given by experts on the application of rehabilitation methods to various types of medical and surgical disability. Other courses have been provided for physical therapy technicians, handicraft teachers and others who are helping in this work. To help with the resettlement of disabled persons in industry, large firms have established special workshops in neighboring hospitals in which disabled employees may be restored to their working capacity by exercising the affected limbs in suitably adapted work under supervision.

Gift from the American Society of Anesthetists

Many medical officers of the United States Army attended an interesting ceremony in the hall of the Royal Society of Medicine, when a talking film projector, a gift from the American Society of Anesthetists, was presented in recognition of the friendly relations between the American and British anesthetists which have been accentuated by the war. The film was handed over by Col. Ralph M. Tovell, consultant in anesthesia to the chief surgeon of the American Expeditionary Forces in Europe. He said "We came here when our countries needed each other's help. We have listened to your men of renown; we have learned a great deal. Much good has accrued to the benefit of the sick and wounded. We have been deeply appreciative of your full cooperation and the friendships made will be lasting. We have written home of these things, and our parent civilian organization, the American Society of Anesthetists, without instigation from members on this side of the water, has procured a 16 mm. sound projector, which has been sent across for presentation to you. It is given as a token of appreciation for your hospitality and kindness to members shown in times of peace and war." In accepting the gift Dr. Francis Evans, president of the section of anesthetists of the Royal Society of Medicine, said that the one hope of the world today was a complete alliance of the English speaking people—not only a political alliance but the deep understanding that came from personal contacts and such kindly acts as this. Surgeon Rear Admiral Gordon-Taylor returned thanks for the whole society and recalled that this was by no means the first gift from American anesthetists to Britain.

SWITZERLAND

(From Our Regular Correspondent)

GENEVA, Feb. 15, 1945.

Federal Examinations in Medicine

Although education and training are under the responsibility of each "cantonment," there are a number of examinations or diplomas which are federal, and the requirements are fixed by the Federal Education Department in Bern. Among these the most important are the medical examinations. Last year 103 doctors were granted diplomas; 13 were women and 30 came from the two Swiss French medical schools of Geneva (6) and Lausanne (24), the latter being famous for its medical education. The others came from the Swiss German faculties: Bâle (22), Berne (26) and Zurich (23) and 2 from Italian Switzerland. There were 2,400 medical students in the Swiss medical schools in 1944. A few medical students shift to other studies in the course of the terms, but the main portion do not complete medical school. An inquiry is proceeding to determine what becomes of these students.

Swiss School for Male Nurses

In the specialized press and in the general daily press, there is a campaign for a school for male nurses. The present war has shown the necessity of male nurses, and many doctors in the Allied armies have complained about how difficult it is to find male nurses to work in the front lines. If by any chance the Swiss had to fight, this shortage or, rather, this total absence of male nurses in the country (except in such specialized fields as psychiatry) would prove catastrophic for the field units. The chief medical officer of the army has well understood this and has already decided to create courses for the training of male nurses in surgery. Apart from the services male nurses can render in wartime, the general feeling is that in peacetime also they are indispensable. The plan is to create a Swiss school for male nurses, giving theoretical as well as practical training.

The Right to Operate

With the introduction of a new penal code, new solutions have been found for problems related to medicine and in particular to surgery. It seems interesting to state briefly the position of the medical man now toward some of these problems:

1. Is it the duty of the doctor to treat a patient, or has he the right to refuse his treatment? Nothing can oblige him to treat a patient, but if death or severe harm ensues he may have to suffer sanctions given in the new penal code.

2. Is it possible for the doctor to take into account neither the will of the patient nor that of his representatives to do an act he thinks of use to his patient? This is a very difficult question, but in case of necessity the doctor can always take a decision without concerning himself with what legal representatives say. Example: A boy has appendicitis; the parents belong to a religious sect which is opposed to any operation. The doctor would not be prosecuted if he operates.

3. Euthanasia. This very important problem presents itself nearly every day in the practice of a doctor. When has he the right to shorten the life of a patient? It seems that the case is as follows: (*a*) Euthanasia is a punishable offense in any case when the person one kills is not on the point of dying, no matter how altruistic the motive. (*b*) When the person is dying, the doctor has the right to give drugs to relieve the sufferings of the dying, even if it hastens the death. This practice is current in Switzerland.

4. Artificial insemination. This is permitted, not only with the husband's semen, but with that of any other man, as long as all persons concerned give their consent, and as it is in view of getting a child and not for experiments.

These few lines show what are the present tendencies of the law as regards medical practice.

PALESTINE

(From a Special Correspondent)

JERUSALEM, Feb. 15, 1945.

The Decline of Child Mortality in Palestine

Bacchi and Kallner published a review of this theme in the January issue of the *Acta medica orientalia*. A decrease in child mortality is being felt throughout the world. A comparison between individual countries shows that the decrease is more evident in countries of advanced civilization and that the decrease is better defined during the second to the fifth than during the first year and during the second to the twelfth month than during the first month of life. It is therefore concluded that for the first month child mortality is mainly determined by biologic, later preponderantly by environmental, factors. As regards Jews of Palestine, mortality has dropped for the first year from 113 per thousand in 1924 to 48 in 1943 and for the first five years together from 160 in 1928 to 64 in 1943. A comparison with other countries shows that here the decrease has been more rapid than elsewhere.

As regards Moslems, the development of child mortality rates follows two main lines: (1) three year cycles (probably owing to triennial outbreaks of epidemics of measles) and (2) a regularly decreasing trend. From 1928-30 to 1940-43 they have for the first year of life decreased by 30 per cent and for the first five years together by 24 per cent. Although in 1924 the infant mortality rate for Moslems of Palestine was among the highest recorded all over the world, it is now lower than for a number of African, Asiatic and South American countries. In other Moslem countries for which data are available, a certain decrease in child mortality is also noted but it is much less apparent than in Palestine. Particularly a comparison between the individual localities within Palestine shows that the proportion of Jews inhabiting a special area is of great importance in reducing the child mortality rates of Arabs living there. It seems, therefore, that not only the general trend of "westernization" but also a special influence of Zionist immigration is active in reducing child mortality rates for Palestinian Moslems.

Annual Meeting of Jewish Medical Association

The 1944 annual meeting of the Jewish Medical Association of Palestine took place in Jerusalem in September 1944, thirty years after the first scientific meeting of the Palestine Jewish Medical Association in 1914, when the main subjects were trachoma and epidemic eye diseases common in the Middle East. The first part of the conference dealt with endemic and epidemic eye diseases. A paper on the development of ophthalmology in Palestine during the past fifty years was read at the opening session by A. Feigenbaum, chairman of the conference.

A paper on the etiology of trachoma was read by J. Taborisky, a well known authority on trachoma, in which he again stressed his conviction, supported by further proof, that the Prowazek-Halberstädter inclusion bodies contain the infective agent of the disease. A special touch to this question was lent by Halberstädter himself in a short paper in which he referred to the early findings as regards the aforementioned inclusion bodies.

Dobrzynski and Mirenburg gave summaries of the results of the antitrachoma campaign by Jewish organizations during the past decade. Apart from some localities where trachoma is still a problem among Oriental Jews, the disease has practically been eliminated in the Jewish sector of the population.

A paper was read by A. Feigenbaum dealing in an exhaustive manner with the problem of epidemic keratoconjunctivitis in the Middle East. A clinical, experimental and histologic study of the disease, which in recent years has gained ground in these regions too, seems to prove that the cause of this disease, the corneal lesions of which can be produced in rabbits, is a filtrable virus.

At the opening session Rear Admiral C. S. Stephenson addressed the meeting with his talk on "Modern Trends in Public Health." He had been in Palestine on behalf of the Hadassah Medical Organization from August 1494 to make a survey of Jewish health requirements. He outlined the vital problems of public health with special reference to water supply, drainage, distribution and preservation of milk and the treatment of foodstuffs in general. Referring to his activities in the tropics, he pointed out that in the Southern Pacific isles "as soon as the flies were cleared away the ophthalmologists were able to pack up and leave." He recalled his first stay in Palestine in 1911, saying "I was here in Palestine in 1911 and saw flies. But I think there are three times as many flies now; such a situation is dangerous. You have beautiful hospitals and do magnificent clinical work, but there are too many people in the hospitals. They would be half empty if you did some good work in preventive medicine. Every time there is a patient in the hospital with a preventable disease, some doctor has fallen down on the job." He also gave an account of how the mosquito problem was successfully tackled by the military authorities, reducing the mortality by 25 per cent, and described the destruction of lice by DDT as a very effective measure in typhus prophylaxis in Italy, where 1,700,000 people were deloused within ten days and thus a stop put to the epidemic.

Another session was devoted to the problem of the reduced number of births among Jews (Cagan, Bermann, Asherman and Bachi). Rural settlements were those with the lowest number of children, and while central or western European settlers in general have an average of two children per family, Sephardic Jews have three and Oriental Jews six, on an average. In the Orthodox urban groups the average is also high, while the general average for Palestine as a whole lies at two per family. Birth control, preeminently practiced for economic reasons, is made responsible for these conditions.

Marriages

FRANK WILSON GEARING JR., Woodstock, Va., to Miss Mary Elizabeth Coleman of Boykins in Richmond, February 24.

ROBERT HOWARD FURMAN, Schenectady, N. Y., to Miss Mary Frances Kilpatrick of Atlanta, February 10.

WILLIAM HENRY MCCAW JR., Columbia, S. C., to Miss Blanche M. Mount of Hightstown, N. J., March 3.

ROBERT DUMAIS KORNEGAY, Rocky Mount, N. C., to Miss Anne Ruth Ennis of Dunn, December 12.

ROBERT GORDON ELLISON, Augusta, Ga., to Miss Lois Anderson Taylor of Fort Valley, February 11.

ROBERT J. FONTES to Miss Margaret N. Gauvin, both of Providence, R. I., February 12.

WILLIAM MCCOY EAGLES, Durham, N. C., to Miss Reita Messick in Washington, March 3.

EVERTT A. OLIVER, Richland, Mo., to Mrs. Alma Wall in Miami, Okla., February 1.

Deaths

Lyle Gillett McNeile, Los Angeles; Los Angeles (Clinical) Medical Department of the University of California, 1910; emeritus professor of obstetrics and gynecology, a department which he organized in 1931 at the University of Southern California School of Medicine, where he served as instructor, assistant professor, associate professor and professor of obstetrics and where a chair in obstetrics bearing his name was recently created, honoring his thirty-five years of service; member of the first faculty of the school of medicine when it became affiliated with the University of Southern California in 1909; formerly professor of clinical obstetrics at the College of Medical Evangelists; resident physician, Sloane Maternity Hospital, New York, 1909, and the Chicago Lying-in Maternity Hospital, 1910-1911; founder and director of the Los Angeles Maternity Service, a municipal dispensary of the city health department; chairman of the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association, 1935-1936; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; fellow of the American College of Surgeons; served as president of the Pacific Coast Society of Obstetrics and Gynecology; senior attending obstetrician, Los Angeles County Hospital; visiting obstetrician, Cedars of Lebanon Hospital; consulting obstetrician at the Hollywood Hospital; author of "Notes on Pathological and Operative Obstetrics" and "Obstetrical Manikin Practice"; died February 25, aged 59.

Charles Henry Lawrence ✠ Boston; Harvard Medical School, Boston, 1908; assistant professor of medicine at the Tufts College Medical School; formerly assistant professor of endocrinology at the Boston University School of Medicine; fellow of the American College of Physicians; member of the American Clinical and Climatological Association; specialist certified by the American Board of Internal Medicine; physician-in-chief of endocrine clinic and consulting physician of children's clinic, New England Medical Center; member of the courtesy staffs of the New England Baptist and Robert Breck Brigham hospitals; member of the associate staff, Faulkner Hospital; consulting physician, Charles Choate Memorial Hospital, Woburn, and the Symmes Arlington Hospital, Arlington, Mass.; consultant in endocrinology at the Joseph H. Pratt Diagnostic Hospital; served in the U. S. Public Health Service; died March 13, aged 62.

Emmet Leroy Wemple, Verdugo City, Calif.; University of California Medical Department, San Francisco, 1900; member of the American Medical Association; awarded the Croix de Guerre by the French government for distinguished service during World War I; at one time associated with the U. S. Public Health Service Reserve, and a medical officer for the U. S. Veterans Bureau in Los Angeles; medical examiner for the Veterans Administration for the La Crescenta-Tujunga area; a medical examiner for local draft board number 181 during World War II; received the Silver Beaver award for his efforts in the boy scout movement; president of the Crescenta Mutual Water Company; a charter member and past president of the Montrose-La Crescenta Kiwanis Club; president of the Crescenta-Canada Rotary Club; died February 9, aged 69, of pulmonary carcinoma.

Will Leroy Pyles ✠ Colonel, U. S. Army, retired, New York; Columbian University Medical Department, Washington, D. C., 1901; Army Medical School, 1903; entered the U. S. Army as an assistant surgeon in 1902; rose through the various grades to that of colonel June 24, 1928; retired Feb. 28, 1942; served twice in the Philippines; commanded Gorgas Hospital in Ancon, Panama, for four years; during World War I served as commanding officer of the army hospital in Louisville, Ky.; formerly army surgeon in the Second Corps area in New York and the Fifth Corps area in Columbus, Ohio; fellow of the American College of Surgeons; received the doctor of public health degree from Johns Hopkins University, Baltimore, in 1923; died in the Veterans Administration Facility March 12, aged 67.

Arthur Edward Smith ✠ Minneapolis; University of Minnesota College of Medicine and Surgery, Minneapolis, 1905; specialist certified by the American Board of Ophthalmology; member of the Minnesota Academy of Medicine, American Academy of Ophthalmology and Otolaryngology, American Association of Railway Surgeons and Sons of the American Revolution; fellow of the American College of Surgeons; served as chief oculist for the Soo Line Railroad; voluntary assistant at Kruckmann Clinic, Berlin, Germany, in 1912 and the Dimmer Clinic in Vienna, Austria, in 1913; served during World War I; served an internship from 1906 to 1908 at the Northwestern Hospital, where he was on the oculist staff and where he died February 16, aged 65, of carcinoma of the prostate.

Walt Ponder Conaway ✠ Atlantic City, N. J.; University and Bellevue Hospital Medical College, New York, 1899; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; first vice president in 1913 and member of the House of Delegates of the American Medical Association from 1931 to 1938; president of the Medical Society of New Jersey in 1927; served as president of the Society of Surgeons of New Jersey; member of the New York Academy of Medicine, New York Obstetrical Society, Philadelphia Pathological Society and the Philadelphia Obstetrical Society; past president of the Philadelphia Medical Club; fellow of the American College of Surgeons; attending gynecologist, Atlantic City Hospital; died January 12, aged 71, of carcinoma of the colon.

Ralph Hopkins ✠ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1899; professor of dermatology emeritus at his alma mater; formerly on the faculty of the Graduate School of Medicine, Tulane University of Louisiana; member and at one time vice president of the American Dermatological Association; specialist certified by the American Board of Dermatology and Syphilology; member of the American Society of Tropical Medicine, International Leprosy Association and the Society of Investigative Dermatology; formerly associated with the U. S. Public Health Service; for many years on the staff of the U. S. Marine Hospital (National Leprosarium) at Carville; died March 7, aged 69.

Andrew Louis Glaze ✠ Birmingham, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1912; specialist certified by the American Board of Dermatology and Syphilology; member of the American Academy of Dermatology and Syphilology; past president of the Southeastern Dermatological Society; president of the Jefferson County Medical Society in 1942; served overseas with the rank of major in the medical corps of the U. S. Army and a commander of a field hospital while in France during World War I; consultant dermatologist, Baptist Hospital, St. Vincent's Hospital, South Highlands Infirmary and Hillman Hospital, where he died January 31, aged 57.

George Frederick Roeling ✠ New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1908; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the American Psychiatric Association, American Medical Association and the New England Society of Psychiatry; formerly coroner; city alienist; medical superintendent of the City Hospital for Mental Diseases; senior visiting neuropsychiatrist, Charity Hospital; visiting neuropsychiatrist, U. S. Marine Hospital (National Leprosarium) Carville, La.; died January 12, aged 58, of coronary occlusion.

George Terrell Singleton ✠ Wichita Falls, Texas; Baylor University College of Medicine, Dallas, 1923; interned at the Baylor Hospital in Dallas; formerly resident physician at the Chicago Eye, Ear, Nose and Throat Hospital; served with a field artillery officers' training school during World War I; a member of the Wichita Falls Independent School District board; head of the Singleton Clinic, which he established; on the staffs of the Bethania Hospital and the Wichita General Hospital, where he died January 13, aged 52, of intestinal obstruction.

Cyrus Pilgrim McRaven ✠ Macomb, Ill.; National University of Arts and Sciences Medical Department, St. Louis, 1915; past president of the Pike-Calhoun Counties Medical Society; health officer for the bicounty health unit, comprising McDonough and Fulton counties; served overseas during World War I; served as physician for the Western State Teachers College and as examining physician and member of the medical advisory board of the local draft board; died in the Barnes Hospital, St. Louis, February 13, aged 59, of bronchogenic carcinoma.

Merton Orris Blakeslee ✠ Lapeer, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1913; member of the American Psychiatric Association; served as medical examiner on Selective Service Board in New Mexico; at one time health officer of Jackson; for many years superintendent of the New Mexico Home and Training School for Mental Defectives at Los Lunas, N. M.; hospital physician and from 1920 to 1928 assistant superintendent at the Lapeer State Home and Training School; found dead February 12, aged 65.

LeRoy Abbott, Wilton, Wis.; Bennett Medical College, Chicago, 1885; in 1935 was honored with a dinner, under the auspices of the Monroe County Medical Society, to observe his

completion of fifty years of practice; died January 7, aged 86, of cerebral hemorrhage.

Edward Gurdon Aldrich, Somerville, Mass.; College of Physicians and Surgeons, New York, 1895; died January 1, aged 79, of acute myocardial failure.

James Ankrom Baker, Middlebourne, W. Va.; Maryland Medical College, Baltimore, 1904; part time health officer for Tyler County; served during World War I; died in St. Joseph's Hospital, Parkersburg, February 26, aged 69.

Frederick Louis Barnes, Oskaloosa, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1899; member of the American Medical Association; died January 28, aged 70, of cerebral thrombosis.

Charles Howard Bee ✠ Indiana, Pa.; Medico-Chirurgical College of Philadelphia, 1905; past president of the Indiana County Medical Society; on the staff of the Indiana Hospital, where he died December 28, aged 69, of shock following an operation for a fractured hip incurred in a fall.

Joseph Tower Berry, Belding, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1906; died February 9, aged 71, of cardiac failure.

Lovisa Ida Blair ✠ Wilkes-Barre, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1912; died December 27, aged 66, of coronary thrombosis and pernicious anemia.

William Sanford Carpenter, Altoona, Iowa; University of Louisville Medical Department, Louisville, Ky., 1894; member of the American Medical Association; served as county coroner; served during World War I; died December 2, aged 73.

William Willis Carrier, Summerville, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1904; member of the American Medical Association; died December 14, aged 70, of coronary occlusion and arteriosclerosis.

Albert John Charlton, Lowden, Iowa; Pulte Medical College, Homeopathic, Cincinnati, 1897; died in Des Moines January 27, aged 74, of coronary occlusion.

Richard Allan Clark, Detroit; McGill University Faculty of Medicine, Montreal, Que., Canada, 1870; died February 22, aged 96, of chronic myocarditis and arteriosclerosis.

Theo F. Clark, Baldwin City, Kan.; Eclectic Medical University, Kansas City, Mo., 1915; Kansas City College of Medicine and Surgery, Kansas City, Mo., 1920; died February 12, aged 78.

Peter Kraft ✠ Duluth, Minn.; Ludwig-Maximilians-Universität Medizinische Fakultät München, Munich, Bavaria, Germany, 1893; on the staffs of St. Mary's and St. Luke's hospitals; died January 12, aged 78, of pneumonia and multiple cerebral hemorrhages.

CAPT. SEYMOUR R. KATZ
M. C., A. U. S., 1917-1944

MAJOR EDMUND S. KANSES
M. C., A. U. S., 1905-1944

LIEUT. COMDR. WAYNE H. STEWART
(MC), U.S.N.R., 1909-1944

Arthur H. Brownell, Oneonta, N. Y.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887; member of the American Medical Association; died January 10, aged 80, of arteriosclerosis and senility.

Joe Ray Carder, Clarksburg, W. Va.; Medical College of Virginia, Richmond, 1925; member of the American Medical Association; served overseas during World War I; died suddenly March 1, aged 51, of heart disease.

Augustus Garland Lee ✠ Texarkana, Ark.; Barnes Medical College, St. Louis, 1901; on the staff of the Texarkana Hospital, where he died January 17, aged 69, of cerebral hemorrhage.

Thomas Hosterman MacKinnon, Brooklyn; McGill University Faculty of Medicine, Montreal, Que., Canada, 1889; member of the American Medical Association; on the staff of St. Catherine's Hospital; died February 10, aged 81, of uremia.

KILLED IN ACTION

Seymour Robert Katz, Chicago; University of Illinois College of Medicine, Chicago, 1941; served an internship at the Cook County Hospital; commissioned a first lieutenant in the medical corps of the Army of the United States on June 6, 1941; later promoted to captain; killed in action in the Southwest Pacific area, May 28, 1944, aged 27.

Edmund Stanley Kanses ✠ Rumson, N. J.; Georgetown University School of Medicine, Washington, D. C., 1933; served an internship at the Monmouth Memorial Hospital, Long Branch, where he had also been a member of the surgical staff; commissioned a first lieutenant in the medical reserve corps of the U. S. Army on Aug. 14, 1935; began active duty in the Army of the United States on April 1, 1941; later promoted to captain and major; killed in action in the European area, July 11, 1944, aged 39.

Wayne Henry Stewart, Coraopolis, Pa.; University of Pittsburgh School of Medicine, 1933; member of the American Medical Association; interned at the Allegheny General Hospital in Pittsburgh; member of the staff of the Sewickley Valley Hospital, Sewickley; commissioned a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on Feb. 9, 1940; promoted to lieutenant on June 15, 1942 and later lieutenant commander; killed in action in the Asiatic area Oct. 25, 1944, aged 35.

Bernard McLaurine, Lincoln, Ala.; Birmingham Medical College, 1910; member of the American Medical Association; died January 17, aged 59, of coronary occlusion.

Walter Lee McManus, Greensboro, N. C.; Atlanta (Ga.) School of Medicine, 1906; died in Danville, Va., January 8, aged 68, of cerebral hemorrhage.

Robert Gray McPherson, Graham, N. C.; University of North Carolina School of Medicine, 1908; member of the American Medical Association; died January 14, aged 64, of arteriosclerosis.

Asa Meeks McRee, Trenton, Tenn.; Vanderbilt University School of Medicine, Nashville, Tenn., 1897; a director of the Citizens National Bank of Trenton; died January 7, aged 72, of hypertension and arteriosclerosis.

Francis Joseph Magilligan ✠ Brooklyn; Bellevue Hospital Medical College, New York, 1890; died February 5, aged 84, of bronchopneumonia.

Albert Cloyd Miller, Columbus, Ohio; Western Reserve University Medical Department, Cleveland, 1897; died February 10, aged 71, of angina pectoris.

Charles Frederick Ober, Manchester, N. H.; University of the City of New York Medical Department, 1879; member of the American Medical Association; died January 29, aged 96, of arteriosclerosis.

John Edwin Porter ✠ Knob Noster, Mo.; Marion-Sims College of Medicine, St. Louis, 1897; surgeon for the Missouri Pacific Railway at Knob Noster; died January 6, aged 77, of heart disease.

John Purman, Pittsburgh; Jefferson Medical College of Philadelphia, 1881; member of the American Medical Association; a founder of the Homestead Hospital, Homestead; died January 14, aged 84, of Paget's disease and heart disease.

Janet Douglas Quinn, Springfield, Ohio; Eclectic Medical Institute, Cincinnati, 1894; died in the City Hospital January 23, aged 87, of carcinoma of the urinary bladder.

Robert Davis Reynolds Jr., Ozark, Ala.; Medical College of Alabama, 1905; member of the American Medical Association; died January 25, aged 62, of coronary thrombosis.

Frederick S. Tillapaugh, Hannibal, N. Y.; College of Physicians and Surgeons, Baltimore, 1888; died in the Albert Lindley Lee Memorial Hospital, Fulton, January 10, aged 85, of arteriosclerotic heart disease.

Walter Charles Tipton, Sylvester, Ga.; Atlanta School of Medicine, 1908; honorary member of the Medical Association of Georgia and member of the American Medical Association; formerly associated with the Indian Service; chairman of the city board of education; died suddenly December 12, aged 62.

Capt. Joseph Barre Traywick
M. C., A. U. S., 1910-1944

Capt. Franklin Lyle Watters,
M. C., A. U. S., 1909-1944

Capt. Harry Winer
M. C., A. U. S., 1913-1944

Royal Watson Pinney, Derby, Conn.; College of Physicians and Surgeons, New York, 1888; member of the American Medical Association; died in the Griffin Hospital January 31, aged 80, of cerebral hemorrhage with right hemiplegia.

James R. Wells, Stone Mountain, Ga.; Atlanta Medical College, 1897; died January 1, aged 72, of coronary thrombosis.

Norman M. Windsor, St. Louis; Barnes Medical College, St. Louis, 1900; died January 25, aged 73, of carcinoma.

KILLED IN ACTION

Joseph Barre Traywick, Cameron, S. C.; Medical College of the State of South Carolina, Charleston, 1937; member of the American Medical Association; interned at the Roper Hospital, Charleston, where he served a residency in pediatrics; served a residency in pediatrics at the University of Virginia Hospital, Charlottesville; commissioned a first lieutenant in the medical corps, Army of the United States, on July 7, 1942; later promoted to captain; awarded Silver Star; killed in action in Germany Nov. 8, 1944, aged 34.

Franklin Lyle Watters, Detroit; Syracuse University College of Medicine, 1935; interned at the Highland Park General Hospital, Highland Park, Mich.; member of the American Medical Association; commissioned a first lieutenant in the medical corps, Army of the United States, on May 20, 1942; later promoted to captain; a flight surgeon, group 387 of the 9th Air Force Bomber Command; embarked for overseas in June 1943; awarded the Silver Star and Purple Heart; received the Soldiers Medal for rescue work at an American Base in England; posthumously awarded the Oak Leaf Cluster to the Soldiers Medal for heroic rescue in which he lost his life; killed by explosion of bombs while rescuing trapped members from a burning crashed bomber in France, Dec. 9, 1944, aged 35.

Harry Winer, Boston; American University of Beirut School of Medicine, Lebanon, 1942; diplomate of the National Board of Medical Examiners; served an internship at the Cambridge City Hospital, Cambridge, Mass.; commissioned a first lieutenant in the medical corps, Army of the United States, on Dec. 22, 1942; began active duty on Jan. 15, 1943; later promoted to captain; killed in action in the European theater of operations, Sept. 15, 1944, aged 30.

Correspondence

MEDICAL COOPERATION WITH BLUE CROSS PLAN

To the Editor:—Certain statements and conclusions in Dr. Lester H. Perry's article entitled "The Coordination of Medical and Blue Cross Plans" in THE JOURNAL, February 10, could be set with advantage in proper relationship to the facts. The Perry presentation was excellent and his conclusions are sound for the most part; this article is not intended as a criticism of his efforts but to complement them, since he apparently was not acquainted with the best instance to complete his case. He should have known about Oregon and Washington.

Doctors of the Pacific Northwest states have established that a cooperative prepaid medical and hospital service plan, sponsored and operated by regular physicians, can continue successfully without any reference to the Blue Cross plan, and certainly without the slightest tendency to succumb to the administrative or other domination of the hospital organizations. Why they have not succumbed to the general trend should encourage other parts of the country to reexamine their own positions in relation to cooperation with the Blue Cross. It may suggest how the trend may be controlled or possibly reversed.

The first law in the nation legalizing and setting forth the requirements for prepaid health plans was the Hospital Association Act passed by the Oregon legislature at its 1917 session. Oregon's experience with prepaid health plans antedates this, however, the first such plan tracing its ancestry to the turn of the century. In 1906 a lay-owned commercial enterprise was launched to explore the prepaid health field and is still doing business. In 1913, 1923 and 1925 other commercial ventures were launched. All these were strictly profit motivated commercial enterprises conducted without reference to any desires or wishes of regular medical circles, but they have had the advantage of serving as trial horses.

The first prepaid medical coverage plan sponsored by regular physicians was the Pierce County Industrial Medical Bureau, established in Tacoma, Wash., in June 1917. The first in Oregon originated in Corvallis, Benton County, in 1926, followed in 1930 by a similar plan in Salem, and in 1932 the Multnomah Industrial Health Association began operations in Portland. In 1931 and 1932 the Washington State Medical Bureaus sprang up in various parts of that state. Today both states are thoroughly covered by these organizations.

Social Security Board figures show that Oregon leads the nation, with 14.2 per cent of its population covered by these plans. Second in the nation is the state of Washington, with 12.9 per cent of its population covered. The California and Michigan plans, about which one hears so much, cover 7.7 per cent and 9.4 per cent respectively of their populations.

In Oregon and Washington the doctors may be excused for feeling a little sorry for the rest of the country, where the Blue Cross people seem to be running away with the prepayment plans and the medical profession finds itself at their mercy. In the Northwest the doctors, not the hospital people, are carrying the ball and doing an excellent job of it. This was confirmed during the recent visit of Louis J. Reed, Ph.D., of the U. S. Public Health Service, who admitted that the situation is unique in the entire country. This is due to the fact that Northwest doctors consider that the hospitals in final analysis are just another instrument with which doctors work, and this is no reflection whatever on the recognized usefulness of hospitals. The doctors are fully willing to work and do work with hospitals and hospital organizations and are deeply and genuinely concerned with the welfare of hospitals. But at the same time they insist that there shall be no case of the tail wagging the dog.

Many and varied experiences have tended to strengthen the conviction of these doctors that their views of the relationship between themselves and the hospital organizations are correct. On the basis of these experiences they are firmly convinced of three things:

1. Despite denials to the contrary by Blue Cross authorities there have been several definite instances of attempts made by hospital organizations or their representatives to intimidate, dominate or control the medical profession or to subordinate the profession to hospitals or health centers. A few specific, substantiated instances are illustrative.

During the period from July to September of 1942 Blue Cross agents or solicitors in Clatsop County, Oregon, attempted to sell medical coverage, doctors' services, without the consent of the profession or the doctors involved, as an adjunct to or a part of the Blue Cross plan.

In the December 1943 issue of *Northwest Medicine* there appeared in full text a true reprint of a letter addressed under date of Oct. 19, 1942 from the Northwest Hospital Service plan to the manager of the Multnomah Medical Service Bureau, Portland, which among other items contained the following statement:

> . . . However, it is felt that, unless some definite decision on your part is reached by October 26, relative to the joint sales of Medical and Hospital Service, we must of necessity look at the Multnomah Medical Service Bureau as a purely competitive organization, which we believe in all fairness justifies our entrance into the field of prepaid medical care. Therefore if negotiations fail to be completed by that date, the Committee, representing the Portland hospitals, has instructed the sales department of the Service Plan, effective November 1, to enter the field of prepaid medical care.

This threat was never carried out. It should be stated in all fairness that the signer of this letter, then and now president of the northwest Blue Cross affiliate, subsequently admitted in addressing the Multnomah County Medical Society that this letter was a grievous error in judgment, and efforts have been exerted to overcome this *faux pas*.

That the attitude may not have changed materially, or the threat of engulfment by Blue Cross administratives entirely subsided, is the opinion of many physicians especially in the state of Washington. As furthering their belief, they point to a piece of legislation from hospital organization sources currently introduced into the Washington state legislature. This bill, they contend, is loaded with enough jokers actually to permit hospital organizations to practice medicine while being highly restrictive of competition in the hospital organization field.

2. There have been numerous instances in which the direction and policies of hospitals and hospital organizations have been captured from true hospital people who understand doctors and doctor problems, by lay members of many hospital boards to the detriment of the medical profession. This conclusion was likewise confirmed by Dr. Reed and in part was one of the factors among others which led the physicians of Seattle to have their King County Medical Service Bureau erect and operate their own Doctors Hospital.

3. Many doctors in the Northwest, on the basis of past and present performance, feel that they cannot rely on hospitals and hospital organizations to safeguard or adequately protect the best interests of the medical profession.

The crux of the argument as far as the Northwest is concerned boils down to the fact that the doctor organizations over many years before Blue Cross was formed have been doing the job which Blue Cross people contend is their own peculiar function, so that the field was adequately covered before the advent of Blue Cross.

The position taken by Oregon and Washington doctors as a result of their experiences has been subjected to criticism, and numerous efforts have been made to have them turn the hospitalization end of the business of the bureaus over to the Blue

Cross, although the present method of operation protects component hospitals against credit losses, which is stated to be one of the chief functions of Blue Cross. Among other things they have been told they are out of step with the rest of the nation. If they are, they apparently intend to remain that way unless convinced that they are in error, but to date they have not been favored with any convincing evidence that their stand is fundamentally wrong.

It has been claimed that efforts to cooperate with the Blue Cross have heretofore resulted invariably in concessions being made by doctor organizations, so that cooperation becomes coordinated in one direction only. Oregon and Washington would seem to be the outstanding if not the only major exceptions. This may indicate that there is still a possibility of arresting and reversing the trend if this is desired. Physicians of the country who may be interested will find their colleagues of the Northwest ready to pass along any "know how" in these matters which they have acquired by virtue of historical accident furnishing them with the longest experience in this field.

GORDON B. LEITCH, M.D., Portland, Ore.

PUNISHMENT FOR VENEREAL DISEASE IN THE ARMED FORCES

To the Editor:—In the communication of Lieut. Israel Zeligman (MC), U.S.N.R., in THE JOURNAL, Dec. 30, 1944 he mentioned that the editorial in THE JOURNAL of October 28 entitled "Punishment for Venereal Disease in the Armed Services" was a misconception and left a wrong impression with the readers and then went on further to state that venereal disease was still considered as misconduct and a man had to make up for lost time due to a venereal disease.

The interpretation given by the editor was correct and venereal disease is being classified as any other disease, as evidenced by the fact that it is considered in line of duty and is misconduct only if an individual fails to comply with existing regulations, requiring him to report and receive treatment for such disease. Lost time is not made up for any disease in line of duty unless proved to be misconduct.

LOUIS GUSS, Captain, M. C., A. U. S.
Base Venereal Disease Control Officer.

STUDIES ON ALCOHOL

To the Editor:—May we call your attention to a minor misstatement in the concluding lines of Dr. Rotman's article on alcoholism in the March 10 issue of THE JOURNAL. He says "The proper approach to the problem [alcoholism] is exemplified in the pioneering efforts of the Yale projects of the Research Council on Problems of Alcoholism, wherein all facets of the problem are under scientific investigation and wherein particular stress is placed on the biologic, physiologic, sociologic, anthropologic and religious aspects." We raise, of course, no objections to Dr. Rotman's flattering estimate of the possible merits of our activities. We wish simply to record that, while we admire the work of the Research Council on Problems of Alcohol, not one of our activities has any connection with that organization. In origin, finance, policy and all other aspects our activities are solely a venture of the Laboratory of Applied Physiology of Yale University and of the *Quarterly Journal of Studies on Alcohol* published from that laboratory.

HOWARD W. HAGGARD, M.D.
E. M. JELLINEK, Sc.D.
Laboratory of Applied Physiology,
New Haven, Conn.

Society Proceedings

MEDICAL CORRECTIONAL ASSOCIATION

An Affiliate of the American Prison Association

Annual Meeting, at the Hotel Pennsylvania in New York on Thursday, Oct. 12, 1944

MORRIS PLOSCOWE, LL.B., New York, Presiding

Officers of the association for 1944: President, Lawrence Kolb, M.D., Washington, D. C.; vice president, Morris Ploscowe, LL.B., New York; vice president, Ray L. Huff, Washington, D. C.; secretary-treasurer, Robert M. Lindner, Ph.D., Lewisburg, Pa. Councilors, Augusta F. Bronner, Ph.D., Boston; George Geil, M.D., Springfield, Mo.; John D. Reichard, M.D., Lexington, Ky.; Robert V. Seliger, M.D., Baltimore; Lowell S. Selling, M.D., Detroit.

Officers of the Association for 1945: President, Robert V. Seliger, M.D., Baltimore; vice president, Robert H. Felix, M.D., Washington, D. C.; vice president, Robert M. Lindner, Ph.D., Lewisburg, Pa.; secretary-treasurer, Edwin J. Lukas, LL.B., New York; Councilors, John D. Reichard, M.D., Lexington, Ky.; Edward C. Rinck, M.D., Lewisburg, Pa.; Dorothy G. Sproul, M.D., Alderson, W. Va.; Lawrence F. Woolley, M.D., Towson, Md.

Alcohol and Crime

EDWIN J. LUKAS, LL.B., New York: Although some of the earliest social prophets had proclaimed the existence of a definite association between alcohol and crime, I find that in 1944 eminent sociologists, psychiatrists and criminologists do not wholly accept these doctrines. A statement is attributed to a famous Boston judge that more than 90 per cent of the adult population of misdemeanor prisoners in Massachusetts prisons are there because of offenses caused by drunkenness and that about 50 per cent of the felons receiving sentences to penal institutions have committed offenses related to alcoholism. The State Probation Commission of New York stated in 1917 that "between alcohol and crime there has always been a close relationship. . . . We believe that most delinquents who have passed the adolescent period are to some extent addicted to the use of intoxicants. These findings harmonize with the statistics reported elsewhere: Sixty-six per cent of the inmates of the Massachusetts State Prison in 1927 were said to be alcoholic addicts. The United States Crime Commission once reported that 50 per cent of the prison inmates in the United States were induced to commit crimes by alcoholism. The 1930 report of the United States Department of Justice asserted that alcohol is responsible for 80 per cent of those antisocial tendencies necessitating the maintenance of jails and corrective institutions.

The fearful implications observable in this popular association of alcohol with crime are considerably minimized by the findings of modern researchers. From a recent study made by Dr. Ralph S. Banay, formerly chief psychiatrist at Sing Sing Prison, this significant finding is derived: "Not all inmates who are included in previous or more recent alcoholic statistics can be justly classified as such, and their habits run parallel to criminality rather than being etiological. . . . The significant finding of the present study is that in 25 per cent of the total offenders alcoholism was closely related to the commission of the crime or was directly responsible for it." Dr. Banay's findings constitute a transitional phase between the thinking that alcohol is at the "root and foundation" of all crime and the theory that it has been greatly overestimated as a crime causative, though criminalism and alcoholism may be found to coexist in a given number of institutionalized offenders. To this latter fact no greater significance need be given than that certain psychologic characteristics might be noted to be held in common among those institutionalized. Instead, the dogma is emerging that the relationship of alcohol to crime is probably the same as the relationship of crime to psychopathy. Gray and Moore

state that "it does not appear from these data that the alcoholic and the abstaining criminal, either male or female, differ very greatly. . . ." And Taft stated that "the prevalence of alcoholism among criminals need not indicate causation at all. Crime and excessive use of alcohol may both be products of the same adverse social conditions or even of the same bodily states. . . ."

Somewhere between the extreme views concerning the role of alcohol in the commission of crime we might interpose what would seem to be a fair statement of the situation: Crime is symptomatic of an underlying behavior disorder produced by the admixture of many factors. Alcohol, constituting a means of escape from painful reality, brings about a toxic state by which the influence of inhibitions is excluded. Poorly integrated personality, emotional instability, conflicts with the environment and frustration are among the principal characteristics of the recidivating criminal offender; but so too are they among the principal characteristics of the alcoholic addict. In that sense dependence on alcohol as a mechanism for dissolving controls and giving full sway to instinctual drives is, like crime itself, merely a manifestation of an underlying disorder. Such dependence may also, like antisocial behavior, be caused by the interaction of economic, social and psychologic factors.

Integration of Psychiatric Service with Court Procedures

DR. LAWRENCE F. WOOLLEY, Cantonsville, Md.: In most courts in the United States defendants are subjected to psychiatric examination because it is asked for by a prosecutor, the defense attorney or the judge. Under such a system many cases are missed in which psychiatric advice would be helpful. Some states, notably Colorado and Massachusetts, have provided for the automatic examination of criminals under certain conditions. The consultants appear as friends of the court instead of for the prosecution or defense.

On Nov. 1, 1936 there became effective in the federal jurisdictions of the United States paragraph 6, subdivision 3, of schedule A of the Civil Service Rules and Regulations. This provides for the appointment by the Public Health Service of a panel of psychiatrists in each jurisdiction who serve as consultants in psychiatry for the advice of the court. In the federal jurisdictions of Maryland, where we deal with unusually enlightened judges and highly competent and socially minded probation officers, passage of this regulation resulted in a more extensive use of psychiatric help. The foundations for this expansion of activity had been laid by the intelligent, constructive work of such men as Dr. Adolf Meyer, Dr. John Rathbone Oliver and Dr. Manfred Guttmacher. Selection of defendants for examination still depends on the recognition of a problem in psychiatry by some of those interested in the proceedings. Many cases are missed in which psychiatric advice would be helpful. Some corrections and improvements should be carried out, so that a more definite and uniform procedure might result. Provision could be made for the routine psychiatric examination of all defendants coming before the federal courts. It would be of advantage to create the position of psychiatrist to the court on a full time basis and at an adequate salary instead of depending on individual consultations on a fee basis. This would assure a continuity of interest and uniformity of service. Also the psychiatrist could be available for consultation at any time he might be needed or helpful. Such full time appointments have been satisfactory in many juvenile courts, family relations courts, city courts and others of local jurisdiction.

What the Psychiatrist Wants from the Social Worker

DR. ROBERT V. SELIGER, Baltimore: Psychiatrists expect social worker colleagues to know everything about the individual and his problem, including his family, social, racial, religious, scholastic, economic and occupational background and setting. We expect the social worker to have a clinical knowledge of psychiatric types, reaction illnesses and personality makeups and knowledge of the required therapeutic approach, including diagnosis and recommendations for placement. We want the social worker to aid in preventive work which involves teaching proper attitudes regarding mental health and illness. The public has no knowledge concerning the extent of mental illness and lack of adequate resources; ignorance and fear of "insanity" still impede even curative measures in many communities. It is imperative that scientific facts about mental health and public welfare be made public and that the public be roused to action. Social workers have a threefold duty: to exert a direct personal influence, to "spot" early signs of psychiatric or other illnesses and take prompt steps toward obtaining help, and to educate and enlighten. No one has a greater opportunity to contribute in this work of education and prevention than has the social worker.

Treatment in the Postwar Prison from the Point of View of the Psychiatrist

DR. MARION R. KING, Washington, D. C.: Not many years ago there was much enthusiasm concerning the prospects of psychiatry in prisons. It now seems that ideals were set too high by both psychiatrists and prison administrators. Since startling achievements have not been forthcoming, this expectancy has naturally diminished and in some places has been replaced by an unfavorable reaction. There is no longer any question concerning the detection and treatment of feebleminded and psychotic prisoners, who comprise at least 3 and 1 per cent of the population respectively. The findings and recommendations pertaining to these groups are acceptable and regarded as helpful even by extreme critics. On the other hand, we find that there is much inconsistency in regard to the diagnosis of psychoneuroses and psychopathic states. For example, the number of prisoners classified as psychopathic in one prison was found to be less than 10 per cent of the population, whereas in another it was more than 60 per cent. Both institutions have well qualified psychiatrists, and no significant difference is known to exist in the type of offenders confined in them. This disparity is largely due to lack of standards in measuring such disabilities. Until we know more about such disorders, such diagnoses should be limited to cases with symptoms of pronounced or moderate degree, which will usually result in the uniform classification of about 15 per cent of the institutional populations in categories other than the mentally defective and psychotic groups. One of our first objectives then should be reorientation with respect to diagnoses. To accomplish this objective it is essential that well organized research work be carried out. Because of the prevailing difficulty in differentiating between untrained and socially maladjusted individuals and those who are truly mentally ill, every effort should be made to establish standards with respect to diagnosis, treatment and prognosis.

The Point of View of the Psychologist

DR. BENJAMIN FRANK, Washington, D. C.: In this discussion we are limited to the possibilities of treatment within the institution. The difficulty lies in the contradictions which arise as a result of attempting to apply modern ideas and present day knowledge within the framework of outmoded physical structures, inherited institutional routines and a traditional legal philosophy. The only way to resolve the dilemmas which beset the prison administrator is to permit the professional staff to participate in the formulation and administration of institutional policies. The chief objective of any treatment program is to reconcile the principle of punishment with that of treatment. The psychologist should also have some responsible share in the execution of the program. After placement there should be provision for a constant referral of cases back to the psychologist for follow-up purposes and for a check on test results and clinical evaluations. The psychologist should also be given the opportunity for research. The psychologist may also have some contribution to make to the formulation of a sound disciplinary policy and to the administration of disciplinary measures. The reformatory movement, which started out so hopefully under Brockway, failed to a large extent because it was founded on a concept of discipline which was psychologically unsound. The therapeutic value of discipline depends on

the attitude with which it is accepted. We must learn to use rewards and incentives more and the older repressive measures less. The day of a prisoner's release is the all powerful motivation on which the entire program must be built. When release is to be delayed for a long time, some constructive substitute motive must be found.

Treatment in the Postwar Prison from the Point of View of the Physician

DR. JOHN W. CRONIN, Washington, D. C.: The fact that the patient is in prison means that he has been unable to adjust adequately, and this inability to adjust has to be evaluated before the physician can plan the therapeutic program for his patient. The physician should learn as much as he can about the internal environment of the individual—his lungs, his heart, his stomach, his liver, his kidneys, his thinking processes, his nervous system as well as the external environment of the individual—his work, his home, his friends, his social status, his financial status, his relationships to the forces of life at present and in the past. It is then only that an intelligent therapeutic and corrective program can be mapped out for the prisoner. Each new prisoner must be examined physically, psychologically and socially by trained specialists. The physician is but one member of a team of specialists, each of whom must be a keen student of human nature and penology. It is the job of the physician to make available to the other specialists his evaluation of the individual, which has been determined after intensive medical studies. The physician is also obligated to prevent the spread of disease to the associates of the prisoners. Such procedures as vaccination, immunologic inoculations and x-ray examination of the chest should be a matter of routine in a modern penal institution. The physician is responsible for the health of the inmate group individually and collectively. He is also responsible for a program of preventive medicine, and this will extend into the sociological realm. The physician must be the health counselor, available to the prisoner as well as to the administrator. The relationship of physician and patient is a confidential one whether it is within or without prison walls. The physician in the prison must stand for law and order, but it does not become him to be a law enforcement officer. Such a role immediately negates the physician's value as a therapeutician for the sick prisoner. A physician in a prison must possess understanding, patience, tolerance and a sense of justice in addition to competence in his specialized field. He is in reality a sociologist, penologist and psychologist as well as a psychiatrist in his daily dealings with his patients and associates.

Physicians as young men have worked in prisons because of the wealth of clinical material. Physicians as old men have worked in prisons because of the security it accorded them. The financial remuneration has not been large enough to attract and hold some physicians in prison work as a career. Capable physicians could be attracted and held in the professional romance of prison medicine if the members of society charged with the administering of penal institutions—not the wardens but the legislators of state or federal governments—would offer such physicians, in addition to a financial salary, the facilities for study in the causes of criminal behavior, the causes of disease and other factors influencing the necessity of having prisons. The beneficiaries of such a medical program would be not only the prisoner but society as a whole in the postwar world.

Hypnoanalysis in the Treatment of Psychopathic Characters

ROBERT M. LINDNER, PH.D., U. S. Public Health Service (R): Hypnoanalysis, in the form developed in our researches at Lewisburg, Pa., can be described as an incisive approach which more rapidly than other psychotherapeutic methods cuts to the core of psychogenic and behavior disorders and enables the therapist to come to grips with the root causes in the dynamics of the disorder confronting him. This it does by utilizing hypnosis as an agent in the therapy, both as a tool for penetration below the resistances presented by the patient, and in synthesizing and enforcing the new and more wholesome attitudes. The term of therapy is far briefer than that of psychoanalysis, and the results so far appear more than ordinarily promising. No one case has occupied more than fifty hours of my time, and to this writing there have been no failures. Investigation begins with an intensive training in hypnosis until a patient can attain the trance state immediately on request, regress to earlier periods of life, recall crucial historical periods in his life and follow posthypnotic suggestions with ease. Once the clinician is assured of the patient's mastery of the foregoing, free association periods occupy the middle phase of therapy. The patient associates freely as he would in an orthodox analysis, but rather than await the disappearance of resistances they are disintegrated through hypnosis. Dreams, problems and other matters of concern are handled similarly to their manner of disposition in ordinary analysis. The final phase of hypnoanalysis is concerned with synthesizing and redistributing the psychologic energies formerly exploited by the pathologic condition. Posthypnotic suggestion is used to engraft new attitudes and views directly on to the personality.

Central to hypnoanalysis, and unique with it, is the continual validation of analytic material received through the peculiar alternation of associative and hypnotic sessions. An unusual phenomenon transpires when the method is used. Once material has been disclosed under hypnosis, if it is memorially valid it tends to reappear spontaneously in free association. Beyond this almost surgical function of hypnosis in distintegrating resistances, it provides something that has been wanted for years in analytic work: a method for checking data produced by the patient. Hypnoanalysis in no way alters the theory of interpretations of behavior which we receive from modern dynamic psychoanalytic psychology. Rather, hypnoanalysis makes more evident more quickly the theoretical and practical benefits of psychoanalysis.

The most significant successes of the hypnoanalytic method have been obtained with that group of persistent, irritating and, until recently, hopelessly regarded individuals known as psychopathic personalities. Analysis of the routine variety fails with such persons because the rapport or transference could never be established by passive orthodox methods. The success of hypoanalysis is due to the powerful transference relationship which exists from the beginning of therapy and which can be controlled as by a pressure gage by the clinician from moment to moment.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, April 7, page 946.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Part III. Various centers, June. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* New Orleans, May 21-22, Philadelphia, June 7-8 and Chicago, June 27-29. *Written.* Oct. 15. Final date for filing application is Aug. 1. Candidates in the armed forces may take the examination at their station with the permission of their medical commanding officer. Asst. Sec., Dr. W. A. Werrell, 1301 University Ave., Madison 5, Wis.

AMERICAN BOARD OF OBSTETRICS & GYNECOLOGY: *Part II. Oral.* Atlantic City, June 13-19. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: New York, June 13-16; Chicago, Oct. 4-6; and Los Angeles, January. Sec., Dr. S. Judd Beach, 56 Ivie Rd., Cape Cottage, Me.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Part I. Oral and Written.* New Orleans, Sept. 28-29, New York, Oct. 5-6, Chicago, Oct. 12-13 and San Francisco, Oct. 19-20. Final date for filing application is August 1. Sec., Dr. G. A. Caldwell, 3503 Prytania St., New Orleans 15.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 3-6. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City, Ia.

AMERICAN BOARD OF PATHOLOGY: Philadelphia, June 13-14. Final date for filing application is May 15. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit 2.

AMERICAN BOARD OF RADIOLOGY: *Oral.* New York, June 3. Final date for filing application is May 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various centers, October. Final date for filing application is Aug. 1. Sec., J. S. Rodman, 225 S. 15th St., Philadelphia 2.

AMERICAN BOARD OF UROLOGY: *Written.* Chicago, Dec. 9. *Oral.* Chicago, Feb. 19-22. Sec., Dr. Gilbert J. Thomas, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1935 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

209:1-140 (Jan.) 1945

*Diabetes Mellitus as Observed in 100 Cases for Ten or More Years: I. General Observations. R. Richardson and M. A. Bowie.—p. 1.
*Id. II. Cardiac Studies. J. Edeiken.—p. 8.
*Id. III. Ocular Findings. I. H. Leopold.—p. 16.
*Id. IV. Peripheral Vascular Findings in 89 of These Cases. M. Naide.—p. 23.
Gelatin as Plasma Substitute: Effect of Gelatin Infusion on the Subsequent Typing and Cross Matching of Blood with Method of Eliminating the Phenomenon of Pseudoagglutination. C. E. Koop.—p. 33.
Epidemic of Pleurodynia with Prominent Neurologic Symptoms and No Demonstrable Cause. Jeannette McConnell.—p. 41.
*Relationship of Cold Agglutinins to Course of Primary Atypical Pneumonia. C. McNeil.—p. 48.
Atypical Pneumonia. Commission on Acute Respiratory Diseases.—p. 55.
Factors in Control of Spread of Acute Respiratory Infections with Reference to Streptococcal Illness and Acute Rheumatic Fever. S. M. Wheeler and T. D. Jones.—p. 58.
Scarlet Fever as Air Borne Infection. H. L. Hodes, F. Schwentker, B. M. Chenoweth Jr. and J. L. Peck Jr.—p. 64.
Transmission and Control of Meningococcal Infections. J. J. Phair and E. B. Schoenbach.—p. 69.
Control of Meningococcal Meningitis by Mass Chemoprophylaxis with Sulfadiazine. F. S. Cheever.—p. 74.
Mumps and Chickenpox as Air Borne Diseases. K. Habel.—p. 75.
Inadequate Action of Penatin Against Brucella Abortus in Vivo. E. L. Stubbs, I. Live, F. G. Sperling and W. Kocholaty.—p. 78.

Diabetes Mellitus as Observed for Ten or More Years.—Four reports from the University of Pennsylvania present a study of 100 patients who had had diabetes for ten years or more. Observation on these patients showed that diabetes does not always progress to greater severity. Comparison of the diet and insulin at the beginning and at the end of a five year period revealed that the diabetes of 45 per cent of the patients had not advanced. Ten patients required less insulin at the end than at the beginning of the period. Of the 55 who required more insulin, a number had also received increases in diet. Acidosis occurred in 3 of the group. Anemia of a mild degree was present in 26 patients. Chronic or repeated acute infections occurred in 39 patients. Hypertension (systolic blood pressure 160 mm.) was present in 38 per cent, all past 50 years of age; the incidence increased with each decade. The incidence of hypertension apparently was not dependent on duration, control or severity of the diabetes. Only 3 patients under 50 had abnormalities of the heart which could be attributed to their diabetic state. The 3 patients were 24, 30 and 47 years of age and had had diabetes for fifteen or sixteen years. The low incidence of cardiovascular abnormalities in this younger group receiving the high carbohydrate-low fat diet compared to reports in the literature on a high fat-low carbohydrate diet is suggestive of the value of the high carbohydrate-low fat diet in reducing the incidence of premature cardiovascular abnormalities. Complicated cataracts were fewer in diabetic patients treated for ten years than in the untreated. Subcapsular "snow flake" cataracts were still found in the diabetic patients treated for ten years. The diabetic patients treated for ten years show an incidence of sclerosis similar to that of the nondiabetic and to the diabetic of varying duration and therapy. Deep retinal hemorrhages and exudates increase with the duration of diabetes and may be slightly decreased by closely observed therapy. Of the 89 patients who were studied from the standpoint of arteriosclerotic occlusive disease in the legs, 3 patients of those under 50 years of age and 30 of those over 50 had evidence of peripheral arteriosclerosis. Premature arteriosclerosis (below 50) was therefore not common in this group. The severity of the diabetes did not affect the incidence of arteriosclerosis, but the adequately controlled patients had a low incidence of arterial disease. The females had a much higher incidence of arteriosclerotic occlusive disease than males. There were no amputations in the entire group. Neuritis in the extremities was present in 31 of the 89 patients, chiefly in those with arteriosclerosis.

Cold Agglutinins and Atypical Pneumonia.—McNeil says that during the fall months of 1943 a small epidemic of primary atypical pneumonia occurred at the Aberdeen Proving Ground, Maryland, and was followed closely in the laboratory, particularly in regard to the changing titer of serum cold agglutinins. One death is reported with interesting pulmonary pathologic changes. Although all of the characteristic cases of atypical pneumonia in this group showed high titers of cold agglutinins, this reaction was not consistent in a subsequent epidemic. The diagnosis of primary atypical pneumonia was based on (1) symptoms of sore throat, headache, chills and fever, paroxysmal dry cough, substernal pain, generalized aches, (2) negative lung signs from four to seven days, changing to rales, without consolidation usually in the lower lobes, (3) chest x-ray evidence from the fourth to the tenth day, (4) negative sputum examination for pathogenic bacteria and (5) normal white blood cell count and differential or slight leukocytosis. Fifteen patients were found to comply with this critical standard. Each patient suspected of developing primary atypical pneumonia had blood withdrawn for cold agglutinin titration every fourth day. The reaction was negative for six days, became positive in six to eight days, reached a peak between the tenth and the fourteenth day and then gradually decreased during convalescence. High titers of cold agglutinins were observed during the most serious stage of the disease (ten to fourteen days). One patient became critically ill and another died in this stage; both had pulmonary edema. The pathologic picture seen in the fatal case was strikingly similar to multiple pulmonary infarction with edema but without thrombosis. It seems logical, however, that small groups of agglutinated cells could form in a relatively cold extremity, act as multiple emboli and cause the pulmonary "infarction" picture.

American Journal of Ophthalmology, Cincinnati

28:1-120 (Jan.) 1945

Edward Jackson's Place in History of Refraction: First Jackson Memorial Lecture. W. H. Crisp.—p. 1.
*Myasthenia Gravis and Its Ocular Signs: Review. F. B. Walsh.—p. 13.
Standardization of So-Called Schiötz Tonometers. P. C. Kronfeld.—p. 34.
Lens in Accommodation. J. G. Sinclair.—p. 38.
Extraction of Senile Cataract: Statistical Comparison of Various Technics and Importance of Preoperative Survey. W. F. Hughes Jr. and W. C. Owens.—p. 40.
Repair Following Tucking Operations on Extraocular Muscles. K. S. Chouké.—p. 50.
Corneal Dystrophies. R. Von der Heydt.—p. 55.
Definition of Anomalous Retinal Correspondence. K. C. Swan.—p. 58.
Use of Choline in Cases of Ulcer and Leukoma of Cornea. T. J. Dimitry and P. Azar.—p. 62.
Intraocular Injection of Penicillin in Case of Ring Abscess of Cornea. D. R. Alpert.—p. 64.
Myxoma of Lower Eyelid. A. E. Town.—p. 68.

Ocular Signs of Myasthenia Gravis.—Walsh bases his report on 63 cases of the disease observed at Johns Hopkins Hospital. Ocular symptoms or signs were present in all cases. Purely "ocular" myasthenia gravis was observed several times, but in such cases there is always the possibility of spread of the weaknesses. The ocular symptoms and signs usually appear early in the course of the disease, but occasionally they are a late development. Ptosis is the most constant ocular sign. Weakness of the orbicularis oculi may occur in the absence of ptosis or with it. Probably weakness in closure of the lids is overlooked more often than any other common ocular sign. Limitation of ocular movements occurs unilaterally or bilaterally and in almost all combinations. When pupillary abnormalities are present, it is doubtful if the case is one of

myasthenia gravis. Changes in accommodation were observed in only 1 case. The visual fields and visual acuity are not altered. The similarity of the ocular signs seen in myasthenia gravis and in thyroid states is noteworthy.

American Journal of Physiology, Baltimore

143:1-155 (Jan.) 1945. **Partial Index**

Periodic Fluctuations in Dark Adapted Threshold. R. H. Lee, E. M. Finch and G. A. Pounds.—p. 6.
Study of Orthostatic Insufficiency by Tiltboard Method. S. C. Allen, C. L. Taylor and V. E. Hall.—p. 11.
Physiologically Equivalent Conditions of Air Temperature and Humidity. S. Robinson, E. S. Turrell and S. D. Gerking.—p. 21.
Determination of Cerebral Blood Flow in Man by Use of Nitrous Oxide in Low Concentrations. S. S. Kety and C. F. Schmidt.—p. 53.
Heart Size in Shock Produced by Venous Occlusion of Hind Limbs of Dog. B. Kondo and L. N. Katz.—p. 77.
Effects of Intracisternal Injection of Sodium Bromide on Blood-Spinal Fluid Barrier. E. G. Weir.—p. 83.
Intramuscular Pressure Changes in Shock. W. Kleinberg, W. W. Swingle and H. W. Hays.—p. 89.
Effect of Dicumarol on Plasma Fibrinogen. U. D. Irish and L. B. Jaques.—p. 101.
Physiologic Bilaterality of Portal Circulation: Streamline Flow of Blood into Liver as Shown by Radioactive Phosphorus. P. F. Hahn, W. D. Donald and R. C. Grier Jr.—p. 105.
Renal Function in Dogs Under Ether or Cyclopropane Anesthesia. F. N. Craig, F. E. Visscher and C. R. Houck.—p. 108.
Muscle Tonus as Factor in Hemorrhage and Shock in Dogs Under Barbital Anesthesia. D. F. Opdyke and G. Bergeron.—p. 119.
Hypertensive Effect of L-Dopa and Related Compounds in Rat. E. W. Page and Rachael Reed.—p. 122.
Hemorrhagic-Hypotension Shock in Locally Anesthetized Dogs. H. C. Wiggers, R. C. Ingraham and J. Dille.—p. 126.
Mechanism of Epinephrine Bradycardia and Shock in Young Animals. S. I. Enikeeva.—p. 134.
Inspiratory Tonus in Anoxia. A. S. Harris.—p. 140.
Effect of Successive Fasts on Ability of Men to Withstand Fasting During Hard Work. H. L. Taylor, J. Brozek, A. Henschel, O. Mickelsen and A. Keys, with technical assistance of H. Guetzkow. —p. 148.

American Journal of Psychiatry, Baltimore

101:285-428 (Nov.) 1944. **Partial Index**

Critique of Psychiatry. A. Gregg.—p. 285.
Group Treatment, with Particular Reference to Group Projection Methods. M. Jones.—p. 292.
Psychologic Adjustment of Soldiers to Army and Civilian Life. G. B. Chisholm.—p. 300.
Treatment Activities in War Psychiatry. L. H. Smith.—p. 303.
Preventive Psychiatry with Combat Troops. H. X. Spiegel.—p. 310.
Psychiatric Casualties in General Hospital Overseas: Preliminary Survey of Recent Cases. H. M. Fox and N. Schnaper.—p. 316.
Aftermath of Operational Fatigue in Combat Aircrews. M. L. Miller. —p. 325.
Treatment of Combat Induced Emotional Disorders in General Hospital Within Continental Limits. G. N. Raines and L. C. Kolb.—p. 331.
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Method of Psychobiologic Evaluation. J. R. Jacobson.—p. 343.
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Use of Drugs in Treatment of Traumatic War Neuroses. R. G. Heath and S. H. Sherman.—p. 355.
Some Objective Studies of Rhythm in Music. H. Hanson.—p. 364.
Psychiatry for Children: Brief History of Developments. L. G. Lowrey. —p. 375.
*Neurosis and Alcohol: Experimental Study. J. H. Masserman.—p. 389.
*Acute Alcoholism Treated with Insulin. S. J. Tillim.—p. 396.
Nonstructural Cerebrovascular Disease as Source of Psychiatric Symptoms. R. W. Waggoner and N. Malamud.—p. 400.
Psychiatric Problem of Suicide. J. H. Wall.—p. 404.

Neurosis and Alcohol.—In the experimental studies described by Masserman, 16 cats were trained to adapt themselves to situations of increasing complexity; first they opened a box of food, then they were taught to feed only after specific sensory stimuli, and finally they learned to manipulate a switch in various positions to actuate their own feeding signals. When alcohol was administered, these patterns disappeared in the order of decreasing complexity of integration until only the original, primitive feeding reactions remained. After recovery the animals were subjected to a severe motivational conflict and developed inhibitions, phobias, loss of dominance, somatic manifestations of anxiety and other behavioral abnormalities typical of an experimental neurosis. Alcohol partially disintegrated these complex responses, restored direct goal behavior and thereby temporarily relieved the neurosis. Ten of the animals, after sufficient experience with this effect, continued to prefer alcohol to nonalcoholic liquids until their neuroses were relieved by various procedures. Discussing the significance of these observations with regard to the therapy of alcoholic addiction in man, the author suggests that neurotic human beings sometimes resort to alcoholism as one means of escape from their pressing intrapsychic conflicts. In the treatment of alcoholic addiction, therefore, the psychiatrist must treat the emotional conflicts and maladjustments of his patients in order to mitigate their need for the drug. Human beings in their complex social milieu present relationships of much greater intricacy than do experimental cats, but the psychobiologic principles discussed here have a bearing on the problems of chronic alcoholism.

Acute Alcoholism Treated with Insulin.—Tillim presents 4 cases of acute alcoholism treated with insulin. The initial dose of insulin is empirically determined as an amount which will produce in one to one and one-half hours somnolence, thirst and diaphoresis. The amounts chosen by the author vary from 40 to 80 units. When the initial dose is insufficient, as observed at the end of one hour, an additional amount is given. The secondary dose may be given intravenously. The intravenous route has a shorter reaction time and is of no extra risk to the patient after his tolerance to insulin is known. The time allowed for a treatment is usually two and one-half hours, occasionally three hours. The individual treatments are terminated by the oral administration of about 8 ounces of fruit juice which contain an additional ounce of sugar. The number of these treatments varies; one may be sufficient or two to four may be required. The author concludes that insulin therapy has proved superior to other available methods for the treatment of acute alcoholism. It shortens the period of disability and is highly acceptable to patients. In wartime a saving in man hours and avoidance of replacements are important considerations.

American Journal of Surgery, New York

67:1-144 (Jan.) 1945

*Modification of Plasma Fixation Method (Sano) of Skin Grafting by Use of Bobbinet and Mirror Attachment. J. A. Jenney.—p. 3.
Administration of Intravenous Fluids to Surgical Patients. P. F. Fox. —p. 8.
Vaseline Gauze Contact Fixation of Split Thickness (Padgett) Skin Grafts. W. M. Roberts and H. J. Schaubel.—p. 16.
Jaundice: Surgical Considerations. S. Eiss.—p. 23.
*Wound Healing: Experimental Study of Water Soluble Chlorophyll Derivatives in Conjunction with Various Antibacterial Agents. L. W. Smith and A. E. Livingston.—p. 30.
Gangrene and Perforation of Gallbladder. C. A. Bachhuber, P. H. Deeb and E. A. Taylor.—p. 40.
Tuberculosis of Breast: Report of 9 Cases, Including 2 Cases of Coexisting Carcinoma and Tuberculosis. R. I. Grausman and M. L. Goldman. —p. 48.
Cholecystitis: Advantages of Operative Treatment in Definite Unmistakable Disease. F. X. Timoney.—p. 57.
Clothespin Graft of Spine for Spondylolisthesis and Laminal Defects. D. M. Bosworth.—p. 61.
Conization and Early Diagnosis of Carcinoma of Cervix. J. J. Haber. —p. 68.
Modified Treatment for Fracture of Head of Radius. R. W. Postlethwait.—p. 77.
Role of Lymphoid Hyperplasia in Acute Appendicitis. H. R. Malloy, R. S. Jason and C. R. Drew.—p. 81.
*Muscle Hernias of Leg: Review of Literature and Report of 12 Cases. H. E. Simon and H. A. Sacchet.—p. 87.
Greater Efficiency in Steam Pressure Sterilization of Surgical Supplies. T. E. Wade.—p. 98.
Handling of War Casualties. J. K. Narat.—p. 106.

Modification of Sano's Plasma Fixation of Skin Grafts.—Methods have been devised which have helped eliminate difficulties encountered in the application of skin grafts after the procedure of Sano. Jenney describes the use of bobbinet on the drum of the Padgett dermatome and a mirror which is attached to the cutting arm. The graft adheres to the rubberized bobbinet and can be easily handled and placed on the recipient area. Thin grafts are not mutilated. The graft can be cut into any shape to cover accurately the area to be grafted. The pieces are pasted on. The graft can be easily applied to areas which are surrounded with scar tissue which would make suturing impossible. Contraction of the graft can be overcome by merely stretching the rubberized fabric. Widely expanded areas resulting from excision of scars can be made smaller by

"tucking in" the skin as the graft is pasted on. The graft can be made to conform to any elevation or depression. It can be molded over forms to line cavities as in buccal inlays or line the ends of tubes. Among the advantages of the use of the mirror are that reflected light from the mirror gives complete illumination of the graft. It is in full view of the operator at all times. The drum does not interfere with the operator's vision, and adjustments for thicker or thinner cuts can be made. The proper cutting angle is fixed if the operator holds his head in a steady position; if the cutting edge is seen, the angle is correct; if it moves up or down, it is incorrect. Variations in the thickness of the graft can be made by viewing the cut in the mirror.

Chlorophyll Derivatives with Antibacterial Agents in Wound Healing.—Smith and Livingston present studies on 192 guinea pigs with bilateral, symmetrical, infected surgical lesions. Topical treatment with 1 per cent chlorophyll ointment was combined with various sulfonamides, with penicillin and with an iodine preparation, 24 animals being used in the experiment with each antibacterial agent, the controls being divided into three equal groups of 8 animals. One third are treated with base alone, one third with base plus chlorophyll and the third with base plus antibacterial agent. The topical use of penicillin in strength of 250 Oxford units per gram of ointment combined with 1 per cent of chlorophyll gave the most spectacular results, with healing complete in 10.6 days as compared to 14.3 with chlorophyll alone and 15 days for penicillin alone. The sulfonamides in combination with chlorophyll showed some acceleration of healing through their control of infection, which appeared to be roughly proportional to their solubility. Carboxysulfathiazole was by far the most effective of the sulfonamides, nearly equaling penicillin in this respect. Sulfanilamide, sulfamerazine and succinylsulfathiazole alone in the ointment base actually caused some delay in healing. The iodine preparation used in the same manner was of about the same order of effectiveness as sulfanilamide, sulfathiazole and sulfadiazine. Experiments carried out on 8 dogs with larger wounds gave comparable results to those in the guinea pigs. The ointment base proved to be entirely satisfactory for clinical use. In a small series of guinea pigs chlorophyll was used as a dusting powder in combination with the various agents. The results were not as satisfactory as with ointments, and further studies do not seem warranted.

Muscle Hernias of Legs.—Simon and Sacchet report observations on 12 patients with muscle hernias of the legs. Three had large solitary hernias of the tibialis anticus muscle, all due to direct trauma. In 2 cases the symptoms were severe enough to justify surgical repair, which was successfully accomplished by fascial transplant. Nine patients had multiple small hernias which developed spontaneously, with congenital weakness as a predisposing factor in some. Hernias of the leg muscles are characterized by a soft semifluctuant swelling, which increases in size when the limb is dependent or the muscle is relaxed and decreases in size or disappears when the muscle involved is contracted. It is reducible on pressure when a distinct fascial defect can be palpated. There are three types: 1. Those due presumably to congenital defect, none of which were observed. 2. Those due to direct trauma, as fractures, lacerations and operations or to indirect muscle violence; these are usually single and large and produce symptoms for which surgery is indicated. 3. Those of the idiopathic type, which appear spontaneously, particularly after muscular activity is increased; they are usually small, are often multiple, present less severe or no symptoms and frequently require no treatment. They are apparently quite frequent, especially among young active males. Differentiation between muscle hernias and varicosities is often confusing. Other conditions to be differentiated are localized varicose veins, lipoma, angioma and other tumors. Surgical treatment when indicated consists in reduction of the herniated muscle and repair of the defect, usually by fascia transplant or suture. The results are usually good. The authors emphasize the importance of careful repair of fascial defects arising from trauma or after operations in order to prevent later development of hernia.

American Review of Soviet Medicine, New York

2:100-192 (Dec.) 1944

Organization of Traumatologic Services in Soviet Industries. N. N. Priorov.—p. 100.
Skin Plastic Procedures in War Injuries. N. N. Blokhin.—p. 104.
All Union Institute of Experimental Medicine and War. N. I. Propper-Grashchenkov.—p. 108.
Use of Carbon Dioxide at Lowered Barometric Pressures. V. M. Tarasenko.—p. 119.
Function of Eye in Aviation. V. Streltsov.—p. 126.
Gramicidin S: Its Origin and Mode of Action. G. F. Gause and M. G. Brazhnikova.—p. 134.
Chemistry of Gramicidin S. A. N. Belozersky and T. S. Passhina. —p. 138.
Gramicidin S in Medical Practice. P. G. Sergiev.—p. 140.
Treatment of Wounds and Ulcers with Gramicidin. A. A. Manevich and G. Z. Pitskhelauri.—p. 143.
Certain Mechanisms Involved in Peripheral Nerve Injuries. L. V. Pines. —p. 149.

American Review of Tuberculosis, New York

51:1-90 (Jan.) 1945

Surgical Treatment of Tension Cavities in Pulmonary Tuberculosis. H. C. Maier.—p. 1.
Treatment of Insufflated Cavities. L. Eloesser, W. L. Rogers and S. J. Shipman.—p. 7.
*Pulmonary Resection in Treatment of Pulmonary Tuberculosis. R. H. Overholt and N. J. Wilson.—p. 18.
Closure of Bronchus in Pulmonary Resection. J. C. Jones.—p. 55.
Bronchography in Pulmonary Tuberculosis: III. Chronic Fibroid Phthisis —Chronic Productive Tuberculosis. B. A. Dormer, J. Friedlander and F. J. Wiles.—p. 62.
Tuberculosis in Wartime. H. Williams.—p. 70.
Conferring of National Achievement Award on Dr. Florence B. Seibert at the White House, Oct. 6, 1944. E. B. Long.—p. 75.

Pulmonary Resection in Pulmonary Tuberculosis.—Overholt and Wilson performed 36 pneumonectomies and 24 lobectomies in 60 consecutive resections. They stress that resection of a tuberculous lung is usually accomplished with greater ease than in cases of pulmonary suppuration or malignancy. Individual ligation of the hilar structures and the careful closure of the bronchus with silk sutures and a reinforcing pleural flap have almost eliminated bronchial fistula and empyema as complications. Contralateral spread remains the greatest hazard in pulmonary resection for tuberculosis. Ulceration of the bronchial stump occurred in 8.5 per cent of the patients. This can be diagnosed only by routine bronchoscopy following resection. It may occur early or late in the postoperative period. Active tuberculosis in the lung to be removed is not a contraindication to resection. Waiting for stabilization of the lesion frequently robs these patients of their only chance to get well. Tuberculous bronchitis is not a contraindication but often an indication for resection. A contralateral lesion is not a contraindication to resection unless it is uncontrolled or uncontrollable. The total operative fatality is 11.6 per cent. The operative fatality in the 47 "reasonable risk" cases is 4.3 per cent and in the 13 "desperate risk" cases is 38.5 per cent. When the patient is in good general condition, the operative fatality for lobectomy and pneumonectomy is almost identical. Pulmonary resection should be considered as a possible method of treatment in outlining therapy for tuberculous patients. Ideally it should be applied before extension of disease and complications occur.

Annals of Allergy, Minneapolis

2:457-540 (Nov.-Dec.) 1944

Mechanism of Anaphylactic and Allergic Reactions: Evaluation of Role of Histamine in Their Production. C. F. Code.—p. 457.
Mechanism of Desensitization. J. Bronfenbrenner.—p. 472.
Mold Fungi in Etiology of Respiratory Allergic Diseases: III. Immunologic Studies with Mold Extracts: 1. Preparation of Experimental Extracts. H. E. Prince and Marie B. Morrow.—p. 483.
Id.: 2. Skin Tests with Experimental Extracts. K. D. Figley and others. —p. 489.
Id.: 3. Failure to Find Histamine-like Substances in Washings and Extracts of Molds Used for Skin Testing. W. A. Selle.—p. 493.
Id.: 4. Skin Tests with Broth and Washings from Mold Pellicles. H. E. Prince.—p. 500.
Mold Fungi in Etiology of Respiratory Allergic Diseases: IV. Skin Reactions to Mold as Correlated with Relative Importance in Treatment. P. L. Zink.—p. 502.
Food Allergy: II. Technic and Clinical Application of Individual Food Tests. H. J. Rinkel.—p. 504.
Influence of Hypnosis on Passive Transfer and Skin Tests. M. Zeller. —p. 515.

Annals of Internal Medicine, Lancaster, Pa.

22:1-160 (Jan.) 1945

Epidemiology of Acute Respiratory Infections Conditioned by Sulfonamides: I. General Clinical Considerations. M. Siegel and L. A. Julianelle.—p. 1.
Id.: II. Gross Alterations in Nasopharyngeal Flora Associated with Treatment. L. A. Julianelle and M. Siegel.—p. 10.
Id.: III. Effects of Treatment on Organism and Carrier of Diphtheria. L. A. Julianelle and M. Siegel.—p. 21.
Id.: IV. Trends in Pneumococcal Types Initiated by Drug Treatment. L. A. Julianelle and M. Siegel.—p. 29.
Notes on 250 Cases of Subacute Bacterial (Streptococcal) Endocarditis Studied and Treated Between 1927 and 1939. S. R. Kelson and P. D. White.—p. 40.
Notes on Treatment of Subacute Bacterial Endocarditis Encountered in 88 Cases at Massachusetts General Hospital During the Six Year Period 1939 to 1944 (Inclusive). P. D. White, M. W. Mathews and E. Evans.—p. 61.
*Observations on Treatment of Subacute Bacterial (Streptococcal) Endocarditis Since 1939. S. R. Kelson.—p. 75.
Clinical Study of Rheumatic Peritonitis. H. Berger.—p. 97.

Treatment of Bacterial Endocarditis.—Analysis of 250 cases of subacute bacterial endocarditis observed between 1927 and 1939 disclosed the ineffectiveness of all methods of therapy prior to the introduction of the sulfonamide drugs. Sulfanilamide, sulfathiazole and sulfadiazine at times gave transient benefit but did not result in any recoveries. Sulfapyridine reduced the fever in a majority and frequently rendered blood cultures negative but cured only 4 of 197 patients. Neoarsphenamine, the sulfonamides together with intravenous typhoparatyphoid vaccine or with hyperthermia, and various other measures gave no lasting help. Sulfapyridine proved to be the most active of the drugs in lowering the temperature—not a mere "antipyretic" effect—and in rendering blood cultures negative—a sterilization of the blood stream—but its benefits passed off in a few days to two months. The failures of sulfapyridine to cure appear related to complications of the disease, toxic effects of the drug, its bacteriostatic rather than bactericidal mechanism, a low concentration of drug within the vegetations, its ineffectiveness against some strains of nonhemolytic streptococci and the almost regular development of resistance to its action. Heparin has been beneficial only when sulfapyridine reduced the temperature to normal or near it and sterilized the blood stream. Decreasing the blood coagulability during a period of such antibacterial effect has almost regularly resulted in recovery. Avoidance of the previous use of sulfapyridine, because of the readiness with which fastness develops, and the persistent continuance of treatment have been the two rules of success with this method. In addition to 2 cases in the original series, the author has observed 10 further apparent recoveries. Penicillin, effective in vitro against nonhemolytic streptococci, can reduce the temperature and sterilize the blood in cases of subacute bacterial (streptococcic) endocarditis, but when the drug is discontinued fever and bacteremia have recurred in all but 2 of such cases reported to date. Substituted for sulfapyridine in the heparin-chemotherapy method, penicillin was partially effective in a case treated by the author but pleomorphic streptococci persisted on the culture plates; these disappeared with supplemental sulfadiazine, and the patient has remained well since. Others also have reported apparent recoveries with the use of penicillin and heparin. Penicillin excels sulfapyridine in its low toxicity and reduced tendency to induce drug fastness, but further data are needed to evaluate its effectiveness.

Annals of Otol., Rhin. and Laryngology, St. Louis

53:621-884 (Dec.) 1944

Purified Gelatin Solution as Blood Plasma Substitute. W. F. Wenner.—p. 635.
Treatment of Sinusitis in Children. B. J. McMahon.—p. 644.
Diagnosis of Mandibular Joint Neuralgia and Its Place in General Head Pain. J. B. Costen.—p. 655.
Nasal Sinus Disease in Children, Its Diagnosis and Treatment. W. H. Johnston.—p. 660.
Adenocarcinoma of Trachea: Pathologic Classification of Assistance in Treatment and Prognosis. L. Wallace.—p. 669.
Auditory Acuity of Aviation Cadets. B. H. Senturia.—p. 705.
Ménière's Syndrome Complex: Observations on the Hearing of Patients Treated with Histamine. H. I. Lillie, B. T. Horton and W. C. Thornell.—p. 717.
Tinnitus Aurium: Observations on Its Nature and Control. M. Atkinson.—p. 742.
Otolaryngology on the High Seas. H. P. Schenck.—p. 752.
Bipolar Tonsillectomy. E. P. Shepard.—p. 759.

Archives of Internal Medicine, Chicago

75:1-74 (Jan.) 1945

*Histoplasmosis in Man: Report of 7 Cases and Review of 71 Cases. R. J. Parsons and C. J. D. Zarafonetis.—p. 1.
Respiration and Circulation in Patients with Obstruction of Superior Vena Cava: Cerebral Factors in Dyspnea and Orthopnea. M. D. Altschule, A. Iglauer and N. Zamcheck.—p. 24.
Primary Atypical Pneumonia of Unknown Cause, with Unusual Manifestations and Complications. R. E. Glendy, S. B. Beaser and W. D. Hankins.—p. 30.
*Effect of Prolonged Physical Inactivity on Tolerance of Sugar. H. Blotner.—p. 39.
Acute Suppurative Bronchopneumonia. H. Neuhof and A. Thomas.—p. 45.
Review of Neuropsychiatry for 1944: Neurosis and War. S. Cobb.—p. 65.

Histoplasmosis.—Parsons and Zarafonetis report 5 cases of histoplasmosis which have been observed at the University of Michigan Hospital, 1 case that originated in Ohio, diagnosed in the Department of Pathology of the University of Michigan, and 1 case diagnosed by Steiner at the University of Chicago. A review of the literature disclosed 71 cases. Histoplasmosis is a fungous disease which is being found with increased frequency. It has proved fatal in most instances. The most common signs and symptoms are fever, hypochromic anemia, hepatomegaly, splenomegaly and lymphadenopathy. Anorexia and loss of weight are common. Ulceration of the oral mucosa (particularly the tongue), various types of cutaneous lesions and ulceration of the pharynx and larynx occur frequently. The yeastlike, or parasitic, form of the fungus is found in cells of the large macrophage or reticuloendothelial system. At necropsy the organs are found to be involved in the following order of frequency: spleen, liver, visceral lymph nodes, lungs, bone marrow, oral mucosa, adrenals, gastrointestinal tract, peripheral lymph nodes, kidneys and larynx. The disease affects persons of all ages. The port of entry of the fungus is still not known, but evidence is accumulating that the mouth is the most frequent site of entrance. The large number of patients who have ulcerated lesions of the mouth, pharynx and gastrointestinal tract point to this conclusion. The many lesions of the nose, pharynx, larynx and lungs are evidence that the respiratory tract is also a port of entry. A smaller group of cases suggests entrance through the skin. The fungus is unknown in its vegetative form in nature, but the parasitic form has been identified in the dog. What appears to be the same organism has also been found in mice, rats and ferrets. Treatment of histoplasmosis is still experimental. The authors have used antimony preparations, such as neostam (stilbamine glucoside) and neostibosan and also some of the new diamidine preparations, particularly stilbamidine. These preparations hold promise for the future. Roentgen rays and radium have been used with equivocal results. Diseases which must be differentiated most frequently from histoplasmosis are tuberculosis, Hodgkin's disease, aleukemic leukemia and malignant neoplasms. Antemortem diagnosis has most frequently been provided by microscopic examination of biopsy material. Blood cultures, cultures of biopsy material and smears or scrapings from superficial lesions have led to diagnosis in several instances.

Physical Inactivity and Tolerance for Sugar.—Blotner studied the effect of prolonged physical inactivity on the dextrose tolerance of 86 nondiabetic patients—70 adults and 16 children—who had been confined to bed for one month to thirteen years by various pathologic conditions. A comparison was made between the dextrose tolerance of these patients and that of active adults and children. It was found in general that the sugar tolerance was diminished in the patients who had been confined to bed for considerable periods. The fasting blood sugar ranged from 70 to 130 mg. per hundred cubic centimeters, and the fasting urine was free from sugar. After the ingestion of dextrose the concentration of blood sugar rose to abnormal levels, the maximum being 364 mg., and varying amounts of sugar were found in the urine. In many of the adults there was a high renal threshold for dextrose. In some patients who later became ambulatory for several months the sugar tolerance returned to normal. Age, hypertension, vascular disease, obesity and infection in themselves did not appear to be significant as causes of diminished sugar tolerance. The arteriovenous differences in the blood sugar of inactive persons after ingestion of dextrose was normal or greater than normal,

which indicates that the muscles of the physically inactive patients are capable of utilizing sugar normally. It is suggested that during prolonged physical inactivity the pancreas is at rest because in this state there is not the demand for rapid storage and utilization of sugar that there is during activity. Consequently there may ensue diabetic-like reactions to dextrose tolerance tests even with normal fasting levels of blood sugar.

Archives of Otolaryngology, Chicago

41:1-98 (Jan.) 1945

*Lempert Fenestra Nov-Ovalis with Mobile Stopple: New Advance in Surgical Treatment for Clinical Otosclerosis Evolved as Result of Research Study of 1,000 Cases in Which Fenestration Has Been Performed During Last Seven Years. J. Lempert.—p. 1.
Reconstruction of Facial Nerve. A. C. Furstenberg.—p. 42.
Acute Nasal Accessory Sinusitis Complicated by Purulent Meningitis: Recovery. E. Ebert.—p. 48.
Relation of *p*H of Nasal Secretions in Situ to Activity of Lysozyme: Report of Case of Experimentally Induced Allergic Rhinitis. N. D. Fabricant.—p. 53.
Treatment of External Otitis: II. Action of Sulfonamide Compounds on Fungi Isolated from Cases of Otomycosis. B. H. Senturia and F. T. Wolf.—p. 56.
Carotid Body Tumor of Middle Ear and Mastoid. H. Rosenwasser. —p. 64.
Determinations of Intranasal *p*H: Discussion and Criticism. S. N. Parkinson.—p. 68.
Hypometabolism in Practice of Otolaryngology. J. W. McLaurin.—p. 71.

Lempert Fenestra Nov-Ovalis with Mobile Stopple.—Lempert has used fenestration of the labyrinth in the treatment of 1,000 patients with clinical otosclerosis over a period of seven years. Serviceable hearing for all social and economic purposes was restored and continuously maintained in a large percentage. Closure of the newly created fenestra by new bone formation and damage to the organ of Corti as a result of serous labyrinthitis were found to be the two major obstacles to the still greater success of this surgical treatment. Study of these two factors revealed that it is not necessary to keep the newly created fenestra continuously open in order to maintain the hearing improvement obtained following fenestration, provided the closure can be kept mobile. The Lempert fenestra nov-ovalis with the mobile stopple was evolved. This is a new technic based on a surgical principle different from any heretofore employed for the improvement of hearing in clinical otosclerosis. The newly created fenestra is immediately closed with a mobile cartilaginous stopple which simulates in function the normal stapedial footplate. Lempert is now employing this technic exclusively, because he is convinced that time and a large number of cases will eventually prove that both major causes of defeat encountered with previously employed technics based on the principle of keeping the fenestra open can thus be conquered.

Archives of Pathology, Chicago

39:1-66 (Jan.) 1945

Role of Schistosomiasis in Etiology of Cancer of Liver in Chinese. P. H. Hartz.—p. 1.
Experimental Haplosporangium Infection. L. L. Ashburn and C. W. Emmons.—p. 3.
*Pancreatic Necrosis in Electric Shock. A. M. Glazer.—p. 9.
Correlation Between Chemical and Morphologic Alterations in Experimental Atherosclerosis. O. J. Pollak.—p. 11.
Attempts to Produce Cerebral Atherosclerosis. O. J. Pollak.—p. 16.
Melanoma of Small Intestine. P. A. Herbut and W. E. Manges.—p. 22.
Chemical Basis of Fever with Inflammation. V. Menkin.—p. 28.
Classification of Tumors of Kidney. G. L. Fite.—p. 37.

Pancreatic Necrosis in Electric Shock.—During the past year Glazer has studied 3 cases of fatal electric shock and observed extensive pancreatic necrosis. Textbooks on electropathology fail to mention these pancreatic changes except that Siroli observed them in animals dying of electric shock. Wider recognition of pancreatic necrosis in electric accidents is important, because in nonfatal cases minor pancreatic changes may occur, which could be determined by studies of the serum amylase. Awareness of this possibility is important for early diagnosis and treatment and for the recognition of possible late sequelae. Minor pancreatic changes may give no immediate symptoms but may later cause pancreatic insufficiency. This is especially important in industrial cases from a medicolegal standpoint.

Arizona Medicine, Phoenix

2:1-68 (Jan.) 1945

Silicosis. F. G. Holmes.—p. 25.
Rh Factor: Practical Aspects. R. J. Jennett.—p. 27.
Gangrene of Thigh: Case Report. H. S. Denninger.—p. 30.
Penicillin in Unusual Case of Peritonitis. W. H. Oatway Jr.—p. 32.
Penicillin in Ear, Nose and Throat. W. H. Woern.—p. 33.

Bulletin of New York Academy of Med., New York

21:1-56 (Jan.) 1945

Chemotherapy of Syphilis. J. E. Moore.—p. 3.
Chemotherapy of Gonorrhea. J. F. Mahoney and C. J. Van Slyke.—p. 18.
Mode of Action of Chemotherapeutic Agents. R. J. Dubos.—p. 27.
Chemoprophylaxis of Streptococcus Disease. H. J. Morgan and R. H. Turner.—p. 37.
Alloxan Diabetes: Its Production and Mechanism. M. G. Goldner.—p. 44.

Canadian Medical Association Journal, Montreal

52:1-122 (Jan.) 1945

Combined Use of Penicillin and Heparin in Treatment of Subacute Bacterial Endocarditis. L. Loewe.—p. 1.
Management of Breast Tumors. R. D. McClure and L. S. Fallis.—p. 14.
Bacteriology of an Epidemic of Staphylococcal Food Poisoning. P. S. Rutherford and C. N. Crowson.—p. 19.
Medical Treatment of Ulcer Hemorrhage. C. J. Tidmarsh.—p. 21.
Course of Pregnancy Following Total Ovarian Ablation. J. E. Ayre and P. J. Kearns.—p. 24.
Mental Adjustments to Industrial Situations. B. Silverman.—p. 26.
*Internal Fixation of Fractures of Neck of Femur. D. W. Boucher. —p. 31.
Gunshot Wounds of Abdomen. D. Telford.—p. 38.
Reduction of Posterior Dislocation of Angle Complicated by Fracture of Distal End of Tibia and Fibula. G. E. Perrigard.—p. 42.
Small Bowel Obstruction Due to Unattached Secondary Tumor. R. F. Warren.—p. 44.
Elbow Fractures. J. D. Stenstrom.—p. 48.
Industrial Nursing. M. S. Mathewson.—p. 55.
Experimental Coronary Thrombosis: Effect of Chronic Excitement of Vagus Nerves by Daily Infusion of Posterior Pituitary Extract. G. H. Ettinger and Margaret E. M. Sawyer.—p. 59.
Pertussis Skin Test in the Newborn and Later Infancy. Margaret Kunstler.—p. 62.
*Importance of Protein Intake in Cancer. H. C. Connell.—p. 64.
Sulfonamide Sensitivity and C Avitaminosis. W. J. McCormick.—p. 68.

Internal Fixation of Fractures of Neck of Femur.—Two operative procedures have been advocated for the introduction of the three flanged nail in the treatment of fractures of the neck of the femur. These are the intra-articular and extra-articular methods. Boucher's experience is limited to insertion and nailing by the extra-articular technic, which in his opinion is much less hazardous than the intra-articular method. The extra-articular method involves less shock and less danger of sepsis. None of the 47 cases reviewed here showed signs of sepsis, and the wounds healed without discharge. The author followed the method suggested by Hey-Groves and Watson-Jones, with slight personal changes. The main features of this method of introducing the nail are accurate measurements of its length and accurate introduction of the guide wire well into the head, leaving the guide in position until the nail has penetrated so far into the head that one is absolutely certain that no rotation can take place if the nail is inserted farther and the guide has been withdrawn. The guide wire is localized in the neck by anteroposterior and lateral x-ray plates, after it has been inserted with the aid of Hey-Groves guides and the sense of sight and touch. The patients treated ranged in age from 54 to 89 years, most of them being in the eighth decade. Nineteen patients had complications on admission that influenced the end results. The fractures were more common in women than in men, the ratio being 5:1. The end results were good in 34 patients, fair in 4 and bad in 4; 5 patients died.

Protein Intake in Cancer.—As a means of determining the possible importance of protein intake in the management of malignant disease, Connell conducted feeding experiments in mice bearing Belough sarcoma transplants. By the deliberate restriction and selection of the protein content in a diet of adequate caloric value, a profound retardation of the advance of Belough sarcoma was observed. This inhibition of the rate of tumor growth is not accompanied by serious loss in weight or

the appearance of other untoward symptoms. The author thinks that the retardation of tumor growth on diets of low caloric intake reported by earlier investigators can be explained in part on the basis of restriction of the protein constituent.

Diseases of Chest, Chicago

11: 1-96 (Jan.-Feb.) 1945

Tuberculosis of Trachea and Major Bronchi. Gertrude Silverman.—p. 1.
Surgical Pathology of Endobronchial Tuberculosis. W. A. Meissner. —p. 18.
Radiologic Findings in Tracheobronchial Tuberculosis. C. C. Birkelo and L. A. Poznak.—p. 26.
Bronchoscopic Observations in Tuberculous Tracheobronchitis: Clinical and Pathologic Correlation. N. J. Wilson.—p. 36.
Clinical Aspects of Endobronchial Tuberculosis. M. J. Stone.—p. 60.
*Pulmonary Resection for Tuberculosis Complicated by Tuberculous Bronchitis (Preliminary Report). R. H. Overholt and N. J. Wilson. —p. 72.

Pulmonary Resection Complicated by Tuberculous Bronchitis.—According to Overholt and Wilson, tuberculous tracheobronchitis has been established as one of the most common and most serious complications of pulmonary tuberculosis. Numerous clinical studies have revealed not only the limitations but also the danger of many collapse procedures in such cases. The authors present data on 30 cases of endobronchial tuberculosis in which pulmonary resection was performed. Of these 30 cases, 12 were desperate risks and 18 were reasonable risks. Patients facing an early fatal course were considered as desperate risks. The operative mortality in reasonable risks was 5.5 per cent and in desperate risks 58.3 per cent. Tuberculous empyema and permanent fistula were eliminated as complications of pulmonary resection in all except 1 of the 19 patients treated after January 1942, when individual ligation technic was employed and the bronchial stump was routinely reenforced with pleura. Ulceration in the bronchial stump and contralateral spread were the most common complications and continue to challenge the thoracic surgeon. Tuberculous bronchitis is not itself a contraindication. On the contrary, this complication often is an indication for resection. Active tuberculosis in the lung to be resected, even if it is rapidly spreading, is not a contraindication to resection. In fact, delay may rob these patients of their only chance to get well. A contralateral lesion in itself is not a contraindication to resection unless this lesion is uncontrolled or uncontrollable. The authors conclude that pulmonary resection should not be considered as a competitive but rather as a supplementary type of therapy to the other well established forms of treatment.

Florida Medical Association Journal, Jacksonville

31:285-332 (Jan.) 1945

Genitourinary Extravasation. H. Hausman.—p. 307.

31:333-392 (Feb.) 1945

Sulfamerazine in Treatment of Meningococcic Meningitis. C. M. Harris. —p. 359.
History of Medicine in Duval County: Instalment III. W. Merritt. —p. 365.

Hawaii Medical Journal, Honolulu

4:65-112 (Nov.-Dec.) 1944

Sexual Sterilization in Hawaii. H. E. Bowles.—p. 65.
Sterilization: Local Aspects of General Problem. P. S. Irwin.—p. 75.
Neuropsychiatric Aspects of Sterilization. W. M. Shanahan.—p. 76.

Iowa State Medical Society Journal, Des Moines

35:1-36 (Jan.) 1945

Management of Abortions. W. E. Brown.—p. 1.
Cancer of Cervix. H. W. Morgan.—p. 6.
Use of Delayed Bone Grafts in Ununited Fractures of the Jaw. E. S. Donohue.—p. 8.
Mastoiditis Complicated by Sulfonamide Intolerance: Report of Case. C. E. Sampson.—p. 11.

35:37-76 (Feb.) 1945

Aids in Diagnosis of Peripheral Nerve Injuries. I. J. Speigel.—p. 37.
Cancer Control, Doctor's Program. E. G. Zimmerer.—p. 41.
Psittacosis in Iowa: Report of Case. J. H. Laubscher, A. J. Wentzien and C. F. Jordan.—p. 44.
Romances of Cardiology. D. J. Glomset.—p. 52.

Journal of Industrial Hygiene & Toxicology, Baltimore

27:1-34 (Jan.) 1945

Amyl Alcohols and Their Ketones: Their Metabolic Fates and Comparative Toxicities. H. W. Haggard, D. P. Miller and L. A. Greenberg.—p. 1.
Toxicology of 1,2-Dichloroethane (Ethylene Dichloride): II. Influence of Dietary Factors on Toxicity of Dichloroethane. L. A. Heppel and others.—p. 15.
Use of Exposed Worker as an Air Sampling Unit for Contaminants. L. Silverman and P. Drinker.—p. 22.
*Dermatitis in the Fish Industry. L. Schwartz and I. R. Tabershaw. —p. 27.
Control of Excessive Heat and Humidity in Industry: Putting Theory into Practice. J. B. Skinner and W. M. Pierce.—p. 31.

Dermatitis in the Fish Industry.—According to Schwartz and Tabershaw various types of dermatologic conditions may result from the handling of fish. Abrasions, lacerations and fissures are common throughout the industry, and infection with staphylococci and occasionally with streptococci occurs frequently. They differ in no way from any chronic boil and yield to cleanliness, hot soaks and prevention of further irritation. Bites have been known to occur from dogfish. Dermatitis and infection may occur from the various stinging fish. The treatment for the bites of fish consists in opening the wound and washing it with a strong solution of permanganate. The conjunctivitis which occasionally occurs in workers engaged in washing sardines is probably due to the presence of portions of jellyfish or strings of sea nettles adhering to the scales of sardines, or to hydrogen sulfide evolved from decaying fish. "Redfeed" dermatitis occurs when mackerel are in season. Mackerel feed on minute crustaceans, one of the most common of which is "redfeed," a reddish orange crustacean occurring in vast swarms. This redfeed, plus digestive juice from the stomach of the mackerel, burn the hand. After one or more days of exposure to this material the skin of the hands becomes swollen and intensely red, with numerous superficial ulcerations. The lesion is painful but heals quickly on application of compresses of boric acid or dilute epsom salt, followed by boric acid or zinc oxide ointment and avoidance of further contact with the material. Erysipeloid is derived chiefly from contact with gurry or the remains of fish that has undergone putrefactive changes. In handling gurry, abrasions, laceration or puncture of the skin is common and erysipeloid may result. Treatment of erysipeloid consists in first evacuating the organism, if possible. Fishermen from experience have learned to make bone punctures bleed if the punctures do not do so spontaneously. The treatment used successfully in one plant has been frequent and prolonged chlorine soaks followed by the application of ointment of ichthammol. The sulfonamides and x-ray therapy have also been used successfully, and in severe cases the use of immune serum may be advisable. Dermatitis from fish may be prevented by the use of rubber gloves.

Journal of Lab. and Clinical Medicine, St. Louis

30:1-98 (Jan.) 1945

Evaluation of In Vitro Tests in Diagnosis of Virus Diseases. S. E. Sulkin and E. M. Izumi.—p. 1.
*Cephalin-Cholesterol Flocculation Test. L. J. Wade and Ellen E. Richman.—p. 6.
Value of Weltmann Serum Coagulation Reaction for Diagnosis of Certain Forms of Malignant Neoplastic Disease. M. Wachstein.—p. 14.
*Studies of Pharmacology of Atabrine on Mice, Rats, Ducks and Dogs. O. W. Barlow, M. E. Auerbach and H. Rivenburg.— . 20.
Effect of Oral Administration of Thymol on Experimentally Induced Tuberculosis. R. McBurney, Louise Cason and H. B. Searcy.—p. 32.

Cephalin-Cholesterol Flocculation Test.—Wade and Richman describe the procedure they followed in performing the cephalin-cholesterol flocculation test and report the results obtained on several groups of patients. The serums of 178 patients with known diffuse parenchymatous liver disease brought about flocculation of the cephalin-cholesterol emulsion in 173 instances. Of 45 patients with discrete lesions of the liver involving only a small part of the parenchyma only 24 showed significant flocculation. Of 180 patients in whom a reasonable suspicion of dysfunction of the liver existed 67 exhibited definite flocculation. Cholecystitis and cholelithiasis were responsible for 21 of these, chronic passive congestion for 24 and chronic alcoholism for 8. The possibility of detecting early cirrhosis among patients suffering from alcoholism has been studied carefully. Although 20 per cent of such patients

had a significant flocculation, none have returned with clinical cirrhosis even though two to three years have elapsed in some instances. Control tests were made on 105 persons. Those from subjects without known disease were negative in all instances. Flocculations thought to be significant did occur, however, in 19 patients who were not suspected of having liver disease. Twelve of the 19 positive reactions occurred in the presence of infection. "False positives" have been observed also in the presence of allergic disease or during the puerperium or neonatal period. With diffuse parenchymatous liver disease the cephalin-cholesterol test surpassed the other tests in the frequency with which supposed hepatic dysfunction was detected. The intravenous hippuric acid and the sulfobromophthalein tests both gave more frequent indication of liver disease in the presence of discrete or focal lesions of the liver. The sulfobromophthalein test (Mateer's modification) in the absence of jaundice gives the most consistent evidence of liver disease. The intravenous hippuric acid and cephalin-cholesterol flocculation tests are next most reliable. The serum diastase test is least valuable of the tests examined. The authors found the cephalin-cholesterol flocculation test of no value in the differentiation of obstructive and nonobstructive jaundice.

Pharmacology of Atabrine.—Barlow and his associates investigated atabrine prepared by the American process from both American and German intermediates with atabrine prepared by the German process from German intermediates. These preparations of atabrine were compared on rats, ducks and dogs. It was found that when given by mouth to mice the toxicity of quinine dihydrochloride, atabrine base in water, atabrine base in oil and atabrine dihydrochloride increases in the order named. The latter was only 25 per cent more toxic than quinine. The acute toxicity of four salts of atabrine was determined in the mouse by three different routes of administration. Atabrine manufactured by the American process from American intermediates was no more toxic to the rat than that manufactured from German intermediates by either the German or the American process. The 3 specimens were deposited to the same extent in the tissues of dogs. While the effects of the 3 specimens on the growth of ducks were not different, the atabrine from American intermediates produced significantly fewer deaths than that from German intermediates. Studies in which rats were given a massive dose of atabrine by mouth show that high concentrations are reached in the tissues, and especially the liver, during the first eight hours and thereafter the amount of drug decreases, but measurable quantities still are present ten days later. After forty-nine days of continuous administration of large doses the livers of young rats showed a deposit of 4.58 mg. of atabrine per gram of tissue and the blood level was 300 micrograms per hundred cubic centimeters. Detectable amounts were still present fifty-six days later. The injuries to the liver and other visceral organs resulting from large doses of atabrine healed well during the two months after medication was discontinued.

Journal of Nutrition, Philadelphia

29:1-84 (Jan.) 1945

Acute and Chronic Biotin Deficiencies in Monkey (Macacca Mulatta). H. A. Waisman, K. B. McCall and C. A. Elvehjem.—p. 1.
Importance of Commercial Processing for Protein Value of Food Products: I. Soybean, Coconut and Sunflower Seed. H. H. Mitchell, T. S. Hamilton and J. R. Beadles with technical assistance of F. Simpson.—p. 13.
*Enriched, Morris Type and Whole Wheat Flour as Sources of B Complex Vitamins. B. D. Westerman and E. G. Bayfield.—p. 27.
Effect of Environmental Temperature on Thiamine Requirement of Rat. O. L. Kline, L. Friedman and E. M. Nelson.—p. 35.
Relation of Dietary Ca: P Ratio to Serum Ca and to Parathyroid Volume. H. C. Stoerk and W. H. Carnes with assistance of Claudia French and Thelma Stout.—p. 43.
Some Factors Influencing Fecal Elimination of Thiamine by Human Subjects. A. Williamson and H. T. Parsons.—p. 51.
Studies on Carotenoid and Vitamin A Levels in Cattle. W. Braun.—p. 61.

Enriched Flour as Sources of B Complex.—According to Westerman and Bayfield about one third of the total calories of American and British diets is obtained from bread and cereals. For European countries other than Britain, this figure is increased to 50 per cent or more. As flour occupies such an important place in the diet, it is desirable that it be of high nutritive value. The authors made four series of experiments on albino rats to compare the relative growth promoting values of whole wheat, Morris type flour, patent flour enriched at the old levels and patent flour enriched at the new levels as a source of the B complex vitamins. The results indicate that whole wheat is a better source of the B complex vitamins than either Morris type flour or patent flour enriched at the old levels, when these materials make up 30 or 50 per cent of the diet. At a 30 per cent level whole wheat is slightly better than patent flour which has been enriched at the new levels. Whole wheat and new enriched flour promote the same amount of growth when fed at a 40 per cent level, while at a 50 per cent level the new enriched flour is better as a source of the B complex vitamins than whole wheat.

Journal of Urology, Baltimore

52:475-648 (Dec.) 1944. **Partial Index**

*Disappearance of Renal Calculi Following Employment of Solution G: Report of Case. H. G. Hamer and H. O. Mertz.—p. 475.
Leiomyoma of Kidney Associated with Hemorrhagic Cyst. E. G. Crabtree.—p. 480.
Diagnosis of Hydronephrosis Caused by Accessory Renal Vessels. E. C. Lowry, J. C. Hayward and D. E. Beard.—p. 492.
Study of Newer Renal Function Tests of Unusual Case of Hypertension Following Irradiation of One Kidney and Relief of Patient by Nephrectomy. A. L. Dean and J. C. Abels.—p. 497.
Renal and Ureteral Changes Induced by Dilating Ureter: Experimental Study. L. F. Greene.—p. 505.
Primary Carcinoma of Ureter Treated by Excision and Anastomosis of Cut Ends. J. C. McClelland.—p. 522.
Ureteral Diverticula with Large Stone and Undeveloped Kidney: Case Report. A. I. Dodson.—p. 526.
Ureterointestinal Anastomosis in Two Stages for Cancers of Bladder: Modification of Original Technic and Report of 33 Cases. H. J. Jewett.—536.
Prevention of Blood Clots in Bladder. G. M. Roberts.—p. 563.
Ascorbic Acid in Pulmonary Complications Following Prostatic Surgery: Preliminary Report. G. E. Slotkin and R. S. Fletcher.—p. 566.
*Treatment of Prostatic Carcinoma by Castration and by Administration of Estrogenic Hormone: Comparison of Clinical Response. R. M. Nesbit, R. Pazzos and R. H. Cummings.—p. 570.
Prognosis in Teratoma Testis. B. S. Barringer.—p. 578.
War Wounds of Urethra: Report of 5 Cases. K. Conger.—p. 590.
Diverticulum of Female Urethra. L. Herman and L. B. Greene.—p. 599.
Penile Horn J. A. Taylor.—p. 611.
Immediate Circumcision for Infected Phimosis; Report of 42 Cases. H. B. Taylor.—p. 615.
Problem of Acidosis in Urologic Patients. R. Pearse.—p. 622.
Penicillin Treatment of Sulfonamide Resistant Gonorrhea with Results of Multiple and Single Injection Methods. M. Exley.—p. 626.
233 Cases of Sulfa Resistant Gonorrhea Treated with 50,000 Units of Penicillin. N. L. Bosworth, L. W. Riba and C. J. Schmidlapp.—p. 631.

Disappearance of Renal Calculi After Use of Solution G.—Hamer and Mertz show that the recent announcement of solutions G and M have stimulated renewed interest in attempts to dissolve alkaline urinary calculi. The formula for solution G is monohydrated citric acid 32.25 Gm., magnesium oxide (anhydrous) 3.84 Gm., sodium carbonate 4.37 Gm. and water sufficient to make 1,000 cc. Lack of complete success with the use of these solutions seems to be dependent on one or more of the following factors: (1) failure of the solution to bathe the calculous mass completely, (2) variations in the chemical composition of different portions of the stone, (3) changes in the character of the surface of the stone occurring during treatment and (4) insufficient treatment. The authors discuss these different factors. Solutions G and M influence only stones composed of calcium phosphate, or carbonate or magnesium ammonium phosphate. They have no appreciable effect on uric acid or calcium oxalate stones. Insufficient treatment may be due to inability of the patient to tolerate the solutions. Solution M is not so acid or so irritating as is solution G, nor does it have so great a solvent action. The amount of solution varies from 1,500 to 3,000 cc. each twenty-four hours. The duration of treatment has been from ten days to three or four months. The size of the pelvis will govern the amount of fluid injected at each treatment. When the hand syringe method of injection is used, available nursing care will govern the interval of the injection, which should not be longer than one or two hours. The pelvis and the calices should be filled with the solution four to six times at each treatment. Successful treatment with the hand syringe will require more time than will treatment with an apparatus such as Kinsell has designed, as the more constantly the stone is bathed by the solution the shorter will be the treatment. Hamer and Mertz report the case of a

woman, aged 27, who had alkaline renal calculi. These had been present since a pyelolithotomy performed three years previously. The principal stone mass was removed at a second pyelolithotomy, and several clusters of calculi left behind were dissolved by the persistent use of solution G. Ten months following dismissal from the hospital the kidney function was improved and the x-ray remained negative for stone shadows.

Castration or Estrogenic Substance in Prostatic Carcinoma.—Nesbit and his collaborators in 1942 reported 75 cases of prostatic cancer treated by castration. In April 1944 they completed a follow-up of 50 cases treated with administration of estrogenic substance alone. The present report compares the results in these two groups. There appear to be no significant differences in subjective response. Objective changes of regression in the primary tumor as well as in the metastases occurred in a significantly greater proportion of castration cases than in the cases treated with diethylstilbestrol. Neither form of treatment affords a prophylaxis against the development of or the increase in metastases. The serum acid phosphatase level is not a reliable index of metastatic carcinogenic activity. Substantial evidence has been offered to prove that the pain in a postcastration failure case has been controlled by administration of estrogenic substance.

Kentucky Medical Journal, Bowling Green

43:1-32 (Jan.) 1945

Accelerated Medicine Today and Tomorrow. R. I. Lee.—p. 3.
Medical Profession and Federal Legislation. E. H. Carey.—p. 7.
The Army's New Weapons Against Insect Borne Diseases. J. S. Simmons.—p. 13.
Recent Developments in Arthritis. R. Pemberton.—p. 17.
Penicillin's Application to Meningitis, Meningococcemia and Septicemia. A. A. LoVetere.—p. 24.

43:33-60 (Feb.) 1945

Chemotherapeutics in Pediatrics. J. A. Toomey.—p. 37.
Psychosomatic Medicine. M. Levine.—p. 39.
Industrial Medicine. A. J. Lanza.—p. 45.
Present Status of Pain Relief in Labor. F. H. Falls.—p. 48.

Missouri State Medical Assn. Journal, St. Louis

42:1-72 (Jan.) 1945

Heart in Hypertension. D. Luten.—p. 17.
Recent Advances in Management of Hypertension. E. Massie.—p. 18.
Psychogenic Factor in Hypertension. A. M. Ginsberg.—p. 24.
Simple View of Hypertension Question. J. T. King.—p. 25.

42:73-128 (Feb.) 1945

Hospital Care of Communicable Disease Patients. R. W. Maxwell.—p. 89.
Some Observations About Hypertension. A. L. Hansen.—p. 91.

Nebraska State Medical Journal, Lincoln

30:1-40 (Jan.) 1945

Clinical Implications of Recent Advances in Knowledge of Vitamins. H. C. S. Aron.—p. 5.
Medical Conditions Simulating a Surgical Upper Abdomen. A. A. Conrad.—p. 11.
Upper Abdominal Pain in Trauma. W. L. Sucha.—p. 14.
Pelvic Conditions Causing Symptoms Simulating a Surgical Upper Abdomen. G. W. Hoftmeister.—p. 17.
Biliary and Pancreatic Pathology Causing Upper Abdominal Pain. H. S. Andrews.—p. 19.
Responsibility of Medicine. L. W. Larson.—p. 21.

30:41-76 (Feb.) 1945

Hypoglycemia in Early Life. L. E. Holt and E. M. Bridge.—p. 45.
*Amino Acids Intravenously in Surgical Patients. H. H. Davis.—p. 51.
Use and Abuse of External Skeletal Fixation. C. F. Ferciot.—p. 55.
Placenta Previa. L. A. Swanson.—p. 58.
Abruptio Placentae. H. E. Harvey.—p. 61.
Postpartum Bleeding. J. J. Grier.—p. 62.
Pelvic Abscesses in Female Children: Report of 2 Cases. L. D. McGuire.—p. 64.

Amino Acids Intravenously in Surgical Patients.—Davis explains the value of protein digest intravenously during the first days following an operation when the diet is inadequate. His plan has been to give 1,000 cc. of protein digest (amigen 5 per cent) with 5 per cent dextrose intravenously twice a day until the nausea has stopped and the patient is able to take a soft diet. Following many operations the period is one day on the protein digest, in others two, and in many cases, notably peritonitis, bowel resections and intestinal obstructions it might be several days or even a week in which the entire nourishment is given by intravenous protein digest. Clinically its use results in improved strength, appetite, wound healing and accelerated recovery. The convalescence is shortened, and complications are decreased.

New England Journal of Medicine

231:865-898 (Dec. 28) 1944

*Cause of Death in Diabetes: Report of 307 Autopsied Cases. S. L. Robbins and A. W. Tucker.—p. 865.
Meningococcal Meningitis and Meningococcemia in Childhood: Statistical Study of 72 Cases. J. Obsorne, W. H. Arnone and G. I. Lythcott.—p. 868.
Surgical Measures in Dysmenorrhea. L. E. Phaneuf.—p. 872.
Cerebrospinal Fluid Protein in Metastatic Brain Tumors. E. W. Shannon and Clinton W. Morgan Jr.—p. 874.
Tuberculosis. J. D. Wassersug.—p. 876.

232:1-30 (Jan. 4) 1945

Waterhouse-Friderichsen Syndrome. V. C. D'Agati and B. A. Marangoni.—p. 1.
Transitory Lung Infiltrations Accompanied by Eosinophilia: Report of Case. H. Miller.—p. 7.
Porphyrins. M. L. Welcker.—p. 11.

232:31-62 (Jan. 11) 1945

Bacteroides Infections: Analysis Based on Review of Literature and Study of 20 Cases. W. E. Smith and Marian W. Ropes.—p. 31.
Alkalosis During Sulfadiazine Therapy for Pneumococcal Meningitis: Report of Case. F. Giunta and R. O. Bowman.—p. 38.
Cutaneous Horn. S. G. Brown.—p. 41.
Diseases of the Newborn. S. H. Clifford.—p. 42.

Cause of Death in Diabetes.—Robbins and Tucker made postmortem studies on diabetic patients at the Mallory Institute of Pathology in Boston. They present an analysis of the causes of death of 307 diabetic patients over the age of 12 as determined by necropsy. For purposes of comparison the necropsies on approximately 2,800 consecutive nondiabetic patients were reviewed for anatomic causes of death. The most frequent cause in the diabetic group was pulmonary infection (25.6 per cent); cardiac decompensation and coronary occlusion follow, with 12.3 per cent and 10.8 per cent respectively. The relative frequency of fatal carcinoma was 8.4 per cent, that of acute pyelonephritis, decompensated, was 7.3 per cent, and that of uncomplicated coma was 7.2 per cent. Cerebral vascular disease accounted for only 5.2 per cent of the deaths. In the control group pulmonary infection again led with 24.2 per cent. Death due to carcinoma was second, with 14.7 per cent. Cardiac decompensation followed, with 12.6 per cent, whereas coronary occlusion and acute pyelonephritis were far down on the list, with 4.2 and 1.6 per cent respectively. Several clinical impressions were confirmed. The diabetic patient lives as long as the nondiabetic. Coronary occlusion, peripheral vascular disease, infections of the extremities and acute pyelonephritis are more frequent causes of death of the diabetic patient.

New York State Journal of Medicine, New York

45:1-112 (Jan. 1) 1945

Renal Tumors Simulating Gastrointestinal Disease. S. Lubash.—p. 45.
Penicillin Treatment in Sulfa Resistant Cases of Gonorrhea in Female. Emily D. Barringer, H. Strauss and E. A. Horowitz.—p. 52.
Bronchial Asthma: Report of 141 Cases. E. Schwartz.—p. 54.
Scope of an Industrial Medical Service. H. H. Fellows.—p. 57.
Chemotherapy, Microbiotic Substances and Radon: Their Local Use as Therapeutic Agents in Otolaryngology. S. J. Crowe and A. T. Ward Jr.—p. 61.
Medical Aspects of Juvenile Delinquency. A. S. Church.—p. 74.

45:113-224 (Jan. 15) 1945

Epidemiology of Poliomyelitis. J. E. Perkins.—p. 159.
Community Organization for Control of Rheumatic Fever. D. H. Armstrong and G. M. Wheatley.—p. 169.
Management of Patient with Prostatic Urinary Obstruction. C. G. Bandler and P. R. Roen.—p. 174.
Electrofit in Depression: Comparison of Hospital and Privately Treated Patients. D. J. Impastato, J. Frosch, R. J. Almansi and S. B. Wortis.—p. 179.
Surgical Treatment for Dysfunction of Temporomandibular Joint. R. T. Percival.—p. 186.
Clinical Treatment of Menopausal Hyperthyroidism with Testosterone Propionate. A. Goldman, A. I. Schaffer and M. J. Markham.—p. 190.
*Chickenpox, Herpes Zoster and Acute Anterior Poliomyelitis. J. C. McGarrahan.—p. 193.

Chickenpox, Herpes Zoster and Acute Anterior Poliomyelitis.—McGarrahan presents case histories which further contribute to facts pointing to an interrelationship between chickenpox and herpes zoster. Treatment of chickenpox with

intravenous thiamine hydrochloride brought the disease to an abrupt end in about six hours. He relates the coincidence of acute anterior poliomyelitis, herpes zoster and chickenpox in 3 members of the same household. A girl aged 6 with acute anterior poliomyelitis made unusual progress when given 50 mg. of thiamine hydrochloride and 150 mg. of niacin intravenously during the acute stage. The value of thiamine hydrochloride in the treatment of herpes zoster is well established. Its value in treating chickenpox is strongly indicated here. Its use in infantile paralysis is an opportunity not to be overlooked. The niacin in the case presented may have been as important as the thiamine, but it is fair to assume, in view of the role of thiamine in the maintenance of nerve function, that its importance is primary and that the patient with infantile paralysis faces a better prospect with an available (parenterally administered) excess of thiamine than with a deficit.

Northwest Medicine, Seattle

44:1-34 (Jan.) 1945

Some Aspects of Skin Diseases as Military Problem. W. R. Nickel.—p. 4.
Arthritis: A Workable Classification. C. P. Wilson.—p. 7.
Penicillium Antibiotic in Treatment of Intrinsic Allergies. P. Schonwald and E. F. Deppe.—p. 10.
Carcinoma of Head of Pancreas and Ampulla of Vater: Two Case Reports. B. P. Mullen.—p. 14.
Postoperative Urinary Infections. R. G. Wyrens.—p. 18.

Ohio State Medical Journal, Columbus

41:1-100 (Jan.) 1945

Factors Which Influence Success in Administration of Anesthetic. N. A. Gillespie.—p. 25.
Treatment of Fractures in Relation to Functional Result. E. H. Wilson. —p. 34.
Acute Obstructive Dyspnea. H. V. Weaver.—p. 39.
Clinical Use of Monomethyl Stilbestrol. Ruth H. St. John.—p. 43.
Adenocarcinoma of Head of Pancreas. R. T. Thompson and G. Y. Abe. —p. 46.
Medical Curiosities. R. M. Watkins.—p. 49.

Public Health Reports, Washington, D. C.

60:1-28 (Jan. 5) 1945

Justice and the Future of Medicine. W. Berge.—p. 1.
Tularemia: Spontaneous Occurrence in Chipmunk. R. R. Parker. —p. 17.

60:29-56 (Jan. 12) 1945

Study of Complement Fixation and Weil-Felix Reactions in Wild Rats as Related to Isolation of Virus of Epidemic Typhus. G. D. Brigham and Ida A. Bengtson.—p. 29.

60:57-84 (Jan. 19) 1945

*Studies of Acute Diarrheal Diseases: XII Etiology. A. V. Hardy and J. Watt.—p. 57.
Metabolism of 2,2 Bis(P-Chlorophenyl) 1,1,1 Trichloroethane (DDT): I. Metabolite from Rabbit Urine, Di(P-Chlorophenyl)Acetic Acid; Its Isolation, Identification and Synthesis. W. C. White and T. R. Sweeney.—p. 66.

Etiology of Acute Diarrheal Diseases.—Hardy and Watt of the United States Public Health Service say that study of the acute diarrheal disease was initiated in 1936. Various aspects of the problem were investigated in regions of high, very high, medium and very low reported mortality from dysentery, diarrhea and enteritis. The areas selected and duration of study are as follows: New Mexico 1936-38, Georgia, 1939-40, New York 1939-40 and 1942, and Puerto Rico 1941-42. A representative county in New Mexico and one in Georgia, and a town and a rural community in Puerto Rico were selected for intensive study. The New York data were collected in Manhattan and in selected state institutions. Both bacillary and protozoan causes of these disorders were sought. The newer highly selective culture mediums for Shigella were employed for the bacteriologic examinations. In all areas investigated the Shigella paradysenteriae group was found most commonly in these diseases. Twenty-three epidemics of diarrheal disease were investigated. Nine were explosive, thirteen nonexplosive, and one was mixed. In seven of the explosive outbreaks the epidemic and the individual cases had a sudden onset and a brief though stormy course. There were no secondary cases. Gram negative pathogenic bacilli were not found on fecal cultures. These were typical food poisoning outbreaks. The other two explosive epidemics were due to Shigella ("Newcastle") and Salmonella typhi murium respectively. In these the primary cases appeared throughout one week, though chiefly within three days. Secondary cases were found. The usual duration of illness was two to five days. Clinically the cases were clearly differentiated from those in the food poisoning outbreaks, and stool cultures were positive. The nonexplosive outbreaks were widely scattered, three in military camps, three in civilian groups and seven among the inmates of mental institutions. Preceding the epidemics, cases of diarrheal diseases had occurred only sporadically. The unusual incidence began insidiously, increased gradually and was maintained persistently. The cases varied in severity and duration. In all instances these outbreaks were found to be due to some single variety of Shigella paradysenteriae. The mixed epidemic was an explosive "food poisoning" outbreak superimposed on a nonexplosive Shigella epidemic.

Quarterly J. of Studies on Alcohol, New Haven, Conn.

5:185-360 (Sept.) 1944

Treatment of Alcohol Addiction in Relation to Prevention of Inebriety. A. Myerson.—p. 189.
Theoretical and Practical Aspects of Psychoanalytic Therapy of Problem Drinkers. S. Weijl.—p. 200.
Conditioned Reflex Therapy of Alcohol Addiction. A. J. Carlson. —p. 212.
Aversion Treatment of Alcohol Addiction. C. A. Shadel.—p. 216.
Further Modifications in Technic of Conditioned Reflex Treatment of Alcohol Addiction. F. Kant.—p. 229.
Critique of Concept of Allergic Nature of Alcohol Addiction. H. W. Haggard.—p. 233.
Problem of Alcoholic Personality. L. K. Frank.—p. 242.
Relation Between Alcoholic and Physician. Florence Powdermaker. —p. 245.
Contribution of Minister to Treatment of Alcoholic. O. R. Rice.—p. 250.
Place of Lay Therapist in Treatment of Alcoholics. D. Anderson. —p. 257.
Therapeutic Role of Alcoholics Anonymous as Seen by Sociologist. R. F. Bales.—p. 267.
Notes on First Half Year's Experience at Yale Plan Clinics. E. M. Jellinek.—p. 279.
Inebriety, Social Integration and Marriage. S. D. Bacon.—p. 303.

5:361-526 (Dec.) 1944

*Wernicke's Disease: Clinical and Pathologic Study of 42 Cases. Helena E. Riggs and R. S. Boles.—p. 361.
Conditioned Reflex Treatment in Light of Our Knowledge of Alcohol Addiction. F. Kant.—p. 371.
Adult Adjustment of Children of Alcoholic Parents Raised in Foster Homes. Anne Roe.—p. 378.
Hospital Psychotherapy of the Nonpsychotic Alcoholic. E. B. Allen. —p. 394.
Alcohol and the Soldier. I. C. Berlien.—p. 405.
Alcohol Problem in the Navy. F. M. Harrison.—p. 413.
Note on Handling of Alcoholics in Navy Camp. T. R. Nunan.—p. 426.
Prognosis in Periodic and Daily Inebriates. M. M. Miller.—p. 430.
Contributions to Psychogenesis of Alcohol Addiction. E. Bergler.—p. 434.
Alcoholic Hallucinations. G. Roheim.—p. 450.
Evils of Drunkenness as Sketched by George Cruikshank; with Reproductions of His Etchings The Bottle and the Drunkard's Children. —p. 483.

Wernicke's Disease.—Riggs and Boles present a study of 42 patients in whom the diagnosis of Wernicke's disease was confirmed by necropsy. A history suggesting chronic alcoholism was obtained in only 18, while all the patients either showed clinical signs of a deficiency state or, at necropsy, presented evidence of organic disease which would contribute to such a condition. The diagnosis in these 42 cases was made almost invariably at necropsy on the basis of characteristic brain changes. The clinical syndrome described by Wernicke was found to be of little value as a criterion of diagnosis. Disturbance of psychic function was present in all cases, usually as an initiating symptom, and in 70 per cent it was associated with other signs of involvement of the nervous system. The classic triad of clouding of consciousness, ophthalmoplegia and ataxia was not noted in its entirety in a single patient. The clinical and necropsy findings in 42 patients with Wernicke's disease suggest that in these individuals nutritional deficiency provided the essential background for the condition. Alcohol, although contributing to the deficiency state in at least 43 per cent of the group, was apparently not a primary factor in the genesis of the disease.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Venereal Diseases, London

20:131-176 (Dec.) 1944

Penicillin in Venereal Diseases—1. A. Fleming.—p. 133.
Penicillin in Venereal Diseases—2. J. Suchet.—p. 136.
Extraurethritic Cases in African Venereal Diseases Hospital. W. A. Young.—p. 141.
Intensive Therapy of Early Syphilis. D. M. Pillsbury, C. J. Courville, R. H. Crede, J. D. Myers and C. R. Wise.—p. 154.

Clinical Science, London

5:1-138 (Aug. 7) 1944

Simple Standard Procedure for Obtaining Blood Having Hemoglobin Content Identical with Arterial Blood. E. B. Reeve and N. A. Neville.—p. 1.
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Massive Hepatic Necrosis and Diffuse Hepatic Fibrosis (Acute Yellow Atrophy and Portal Cirrhosis): Their Production by Means of Diet. H. P. Himsworth and L. E. Glynn.—p. 93.
Cardiac Output in Severe Anemia. E. P. Sharpey-Schafer.—p. 125.
Prevention of Experimental Massive Hepatic Necrosis by Methionine. H. P. Himsworth and L. E. Glynn.—p. 133.

Ophthalmoplegia in Toxic Diffuse Goiter.—Rundle and Wilson use the expression "ophthalmic type of Graves' disease" to describe cases in which the ocular changes occur without goiter or hyperthyroidism. This paper is based on data from 32 patients of the purely ophthalmic type and from 57 patients with the ordinary type of toxic diffuse goiter with hyperthyroidism. The vertometer was used for measuring the duction movements of the eye. Elevation, depression, adduction and abduction of the eye are measured from a standard central position in which the subject looks directly forward, Reid's base line being horizontal. A table which shows the incidence and severity of ophthalmoplegia in the ophthalmic and thyrotoxic forms of toxic diffuse goiter reveals that of the 32 patients with the ophthalmic type 22 had moderate or severe ophthalmoplegia, whereas of the 57 with the thyrotoxic type only 5 had moderate or severe ophthalmoplegia. There seems to be an inverse relationship between ophthalmoplegia and hyperthyroidism in toxic diffuse goiter. The expression "Graves' disease" may conveniently be used to include ophthalmic forms in which hyperthyroidism is slight or absent as well as ordinary thyrotoxicosis. Disorders of the eye muscles are an integral feature of both. In the ophthalmic forms ophthalmoplegia differs in degree but not in kind from that in thyrotoxicosis. Ophthalmoplegia in toxic diffuse goiter tends to be bilateral and has a well defined pattern. Paralysis of elevation is frequent and severe. It depends primarily on weakness of the superior rectus muscle. Taken together the horizontal ductions are more liable to paralysis than depression. Paralytic squint is a frequent complication and depends on asymmetry in the power of corresponding recti.

Bulging of Eyelids with Exophthalmos.—In this paper Rundle and Wilson direct attention to the fatty swelling of the lids occurring with exophthalmos in thyrotoxicosis, giving particular attention to the clinical characteristics and the mechanism. Such swelling is not confined to patients with toxic diffuse goiter but is found in a variety of conditions characterized by overfilling of the orbit and exophthalmos. It is, in fact, simply a protrusion of the normal lid and is not due to edema of the palpebral tissues as generally stated. Variations in protrusion or recession accurately reflect changes in the degree of orbital filling. In wasting of the orbital tissues the eye is sunken. The lids are receded. Bulging of the lids due to prolapsing fat has well defined clinical appearances. In the upper lid these are best observed with the eye closed, in the lower with the eye open. After discussing prolapsing orbital fat as the cause of bulging, the authors show how it is differentiated from edema of the eyelids. Further they demonstrate the correlation between lid protrusion and proptosis and then discuss the mechanics of exophthalmos and lid protrusion. Disparity between the bulk of the contents and capacity of the orbit may arise from a variety of clinical conditions, but some expression such as orbital overfilling, overcrowding or disproportion is necessary to describe their basic and common pathology. In its strict sense exophthalmos is only one of the consequent signs. Lid protrusion is another. It remains for clinical investigation to determine others and so to decide which of the manifold eye signs described in toxic diffuse goiter are explicable on this simple basis. Unfortunately "exophthalmos" is often used in an omnibus sense to describe all such cognate signs. The authors conclude that variations in the plane of the eyelids, sunken, normal or bulged, reflect corresponding variations in the degree of orbital filling, as do correlative changes in position of the eye. The clinical characters of sunken and bulged lids are well defined and, together with the exophthalmometer reading, enable departures from the average degree of filling to be detected.

Medicina, Madrid

12:701-780 (Oct.) 1944. **Partial Index**

*Influence of Desoxicorticosterone on Insulin Coma. E. Romo Aldama.—p. 703.
Myocarditis from Trichinosis. L. Manuel y Piniés.—p. 738.

Influence of Desoxicorticosterone on Insulin Coma.—Romo Aldama observed that schizophrenic patients in acute coma from insulin shock did not respond to the administration of dextrose, epinephrine and sugar and that they had developed hyperglycemia in the course of the shock. He found in animal experiments and in clinical experience with schizophrenic patients that administration of desoxicorticosterone in a dose of 2 mg. for each kilogram of body weight in rabbits and of 10 or 20 mg. to adult human beings resulted in an improvement in the course of experimental or clinical coma and in recovery.

Revista Clínica Española, Madrid

14:359-438 (Sept. 30) 1944. **Partial Index**

*Familial Total Inversion of Viscera with Congenital Bronchiectasis and Cystic Lung. L. López Areal.—p. 378.

Familial Total Visceral Inversion.—López Areal describes 4 instances of total familial visceral inversion with congenital bronchiectasis and cystic lung. Three were in 2 brothers and a sister. All 4 patients presented, in addition to these abnormalities, chronic inflammation of the nasopharynx (polypi and sinusitis) and absence or incomplete development of the frontal sinuses. All 4 patients exhibited the Kartagener triad of congenital bronchiectasis, inversion of the viscera and lesions of the nasopharynx. The author's cases bring the number of reported cases to 61. They are the first cases reported in Spain.

Revista Médica de Chile, Santiago

72:753-876 (Sept.) 1944. **Partial Index**

*Late Nervous Complications of Typhoid and Paratyphoid Infections. E. Uiberall.—p. 793.
Cardiac Insufficiency of Rare Etiology: Case. S. Grinschpun and S. Awad.—p. 829.

Nervous Complications of Typhoid and Paratyphoid.—According to Uiberall acute and subacute nervous complications may appear early or late in the convalescence from typhoid or paratyphoid. The symptoms are those of encephalitis, myelitis and polyneuritis with more or less extensive involvement of the nervous plexuses or the peripheral nerves. He reports 7 instances complicating late convalescence from typhoid. There were 2 instances of encephalitis, 1 each of myelitis of the Landry type and of focal anterior poliomyelitis and 3 instances of neuritis. In 1 of the last 3 cases crural neuritis was caused by paratyphoid A infection. He reports also a case of meningitis caused by Salmonella schottmuelleri.

Book Notices

Committee on Public Health Relations, The New York Academy of Medicine: Report of Activities for the Year 1943. Paper. Pp. 32. New York: The Academy, [n. d.].

This report reviews the active program in public health relations which should be studied by medical societies across the nation. It is a real program of public health relations, not merely a program of publicity. The committee of public health relations of the academy has actually gone to work and made studies, held conferences with interested groups and made contributions to a long list of problems and topics. The index alone gives an idea of the range of this committee's activities. Alphabetically the committee has had under consideration in 1943 abortions, adolescent delinquency, barbiturates, the Beveridge plan, malaria and world health, butter substitutes, pasteurization of certified milk, medical examinations by the Civil Service Commission, qualifications for a director of health education in schools, eye clinics, training the handicapped for war work, industrial medicine, inhalational therapy, qualifications of an ophthalmologist in the labor department, margarine, maternal mortality, qualifications of a commissioner for the mental hygiene department, payment of physicians in municipal hospitals, practical nurses, optical plans, the opticians' bill, optometrists in eye clinics, central file of psychiatric histories, the Public Health Research Institute of the City of New York, rebates, ringworm of the scalp, the compulsory examination of school teachers, social hygiene, speech rehabilitation, tuberculin tests, venereal disease instruction and youth correction authority. A real program of public health relations involves service, not merely publicity. This report exemplifies and summarizes such a program. It is recommended to the secretaries, medical or lay, of medical societies and to public health officials everywhere.

The First Woman Doctor: The Story of Elizabeth Blackwell, M.D. By Rachel Baker. Cloth. Price, $2.50. Pp. 246, with illustrations by Corinne Malvern. New York: Julian Messner, Inc., 1944.

This is the simply told narrative of Elizabeth Blackwell, M.D., who was the first woman to enter and graduate from an American medical college. Perhaps the courage which led her to drive to her goal is best characterized by her decision as a little girl. When asked what she intended to do when she grew up she said she did not know but that whatever she did it would "be something hard." Her selection of medicine as a career completely fulfilled this formula, because no woman had ever entered this profession in this country, at least through the orthodox channels of a medical school. The sequence of events in Dr. Blackwell's life to accomplish "something hard" includes her struggles to gain admission to a medical school, successful finally in the now defunct Geneva Medical College of New York State (from which she graduated in 1849), to find a place to live among people hostile to the innovation of a woman medical student, to achieve acceptance by fellow students and faculty and later, as a graduate physician in schools of Paris, to establish a practice and to organize a hospital and finally a medical school for women in New York.

It was essential that Elizabeth Blackwell should undergo the physical and psychologic hardships of the "first woman doctor." After a hundred years the contributions and even the indispensability of women in some fields of medical science are unquestioned. The most compelling obstacles to women today are not primarily the medical schools or the profession but rather the public, which in many instances prefers a man to a woman doctor and also in women themselves, whose interest in this career is limited to a few. It has now been decreed that able bodied men may not enter the career of medicine for a period of years. Under these conditions it would be desirable to have increased numbers of competent women qualified for the study and practice of medicine. However, these are not to be had in large numbers. In most of our medical schools the proportion of women applicants to those accepted is about the same as in the case of men. Qualified women encounter no seriously greater difficulty in obtaining admission to most of our medical schools than is true of qualified men.

Medical Diseases of War. By Sir Arthur Hurst, M.A., D.M., F.R.C.P., Consulting Physician to Guy's Hospital, London. With the co-operation of H. W. Barber, M.A., M.B., F.R.C.P., Physician-in-Charge of the Skin Department, Guy's Hospital, and others. [Fourth edition of present war; Seventh of World War I.] Cloth. Price, $6. Pp. 511, with 49 illustrations. Baltimore: William Wood & Company, 1944.

This book should prove interesting reading to the average medical officer and even to the physician in private practice. It consists of twenty-nine chapters, of which seventeen directly or indirectly concern the central nervous system, great emphasis being placed on the control of disorders of the mind such as neuroses and hysteria. While the cited experiences seem to date mostly to the first world war, the principles are mostly still valid and the reader will gain considerable information from the chapters relating to hysteria, disorders of speech and functional disorders. Other chapters concern trench fever, typhus, typhoid and paratyphoid fevers, dysentery, "epidemic jaundice," malaria, meningococcic fever, diphtheria, tetanus, war nephritis, skin disease in war and gas poisoning. Some of these chapters are not quite up to date concerning treatment; for example, no mention is made of DDT in the control of typhus, of succinylsulfathiazole in the control of bacillary dysentery and of iodine compounds for amebic dysentery. Perhaps this is explained by the dateline, which is December 1943. A helpful chapter would be one on the relation of chemotherapy to the treatment of diseases of war, as chemotherapy is playing an ever increasingly important role. The first edition was published in 1916, the present volume being the seventh edition and the fourth of the present war. Cooperating with the author are seven persons who have special knowledge in their respective fields.

Industrial Nutrition. By Ludwig Teleky, M.D. Industrial Commentaries Volume 2, Number 1. Boards. Price, $2. Pp. 64. Chicago: H. M. Van Hoesen, Jr., Industrial Commentaries, 1944.

This little book is one of a series of "industrial commentaries." It touches on the high points of nutrition and attempts to relate them to industrial nutrition. Too much space is devoted in the early part of the book to a loose presentation of the elementary facts of nutrition. The scanty food tables given serve no real purpose. An enumeration of the classes of foods gives a disjointed assemblage of facts, some of which are meaningless and inaccurate. Some recommendations are at variance with those of recognized authorities. From the nutritional standpoint the book is superfluous. Its comments on nutrition as related to industry are based on a limited number of published reports and excerpts from textbooks as well as general observations concerning the methods of food supply in industrial plants. Some of the important points of controversial nature are mentioned but inadequately discussed. Insufficient emphasis is placed on the important and difficult problem of nutritional education of the worker. This book can scarcely be recommended as a worthwhile source of information on its subject.

Synopsis of Neuropsychiatry. By Lowell S. Selling, Sc.M., M.D., Ph.D., Director, Psychopathic Clinic, Recorder's Court, Detroit, Michigan. Fabrikold. Price, $5. Pp. 500. St. Louis: C. V. Mosby Company, 1944.

In the early days of medicine synopses were valuable, since for the medical student disease was a problem of memorizing signs and symptoms. As medicine became dynamic, the value of such books lessened. In the field of psychiatry, synopses have never been of any help to the serious student. It is an anachronism that this year sees the publishing of a new synopsis of neuropsychiatry. Within the span of 472 pages the author attempts to outline the existing knowledge of organic and functional diseases of the nervous system. The work is replete with errors and inaccuracies.

The Story of a Hospital: The Neurological Institute of New York, 1909-1938. By Charles A. Elsberg, M.D. Cloth. Price, $3.50. Pp. 174, with illustrations. New York & London: Paul B. Hoeber, Inc., 1944.

The author has written a most interesting story. It describes the early life of the first neurologic institute, with all its trials and tribulations. Following this there are nine chapters given to the advancement and progress of the institute. The appendix has two chapters listing the trustees and the staff of the institute from 1909 to 1938. This small book should be purchased by every neurologist and neurosurgeon.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

AIR CONDUCTION AND BONE CONDUCTION HEARING AIDS

To the Editor:—As consulting physician to the Vocational Rehabilitation Service of the Department of Education, I have been asked a number of questions by the field workers concerning the relative efficiency of hearing devices, chiefly in regard to air conduction and bone conduction. 1. Does bone conduction decrease with the age of the patient? 2. Is there any evidence of gradual loss of hearing in the high frequency levels over a period of years with bone conduction? 3. How much increase over air conduction must bone conduction have before it is considered to be the preferable form of device to use?

R. B. Aiken, M.D., Burlington, Vt.

ANSWER.—1. Bone conduction does not decrease with age unless the hearing impairment originates in a nerve: senile nerve deafness is, of course, always accompanied by decrease of hearing by bone conduction.

2. Senile nerve deafness affects the high tones in every one past the age of 60 and in some below this age, and with this nerve impairment there is a loss of hearing by bone conduction for these high tones.

3. The bone conduction type of hearing aid, as a rule, has no great advantage over air conduction, as the latter earpiece fits tightly enough into the external auditory meatus so that there is actually considerable bone conduction involved. In cases of nerve deafness the air conduction type must always be used. In cases of conduction deafness with good hearing by bone conduction, either the air conduction or bone conduction type may be used; this decision may rest on the patient's preference more than on the hearing tests.

EFFECTS OF RADIUM ON BONE GROWTH

To the Editor:—I have recently seen several conflicting reports as to the bad effects of radium on the growth of bone when applied for the treatment of hemangiomas. I refer particularly to the treatment of cavernous hemangiomas with gamma radiation over the wrist joint, the ankle or the knee, where presumably the ends of the long bones would be subjected to a moderate amount of irradiation. Would it be considered safe and without serious effect on the growth of the bones to treat hemangiomas in these areas with radium?

M.D., New Jersey.

ANSWER.—Large doses of radium or any type of radiation will cause bone necrosis whether applied to normal or to pathologic bone. It is not necessary to treat cavernous hemangiomas with radium or radiation in such a manner as to cause bone necrosis. In youngsters before ossification is complete it is always dangerous to give radiation to the ends of the long bones, as it may lead to disturbances in growth; therefore, whenever treating a lesion by radiation over the ends of long bones it is well to be cautious in the amount of treatment and, if possible, the epiphyses and metaphyses should be completely protected.

DETERMINING BLOOD CHOLESTEROL

To the Editor:—How much difference is there in using serum or in using plasma when determining blood cholesterol by the method of Bloor? The textbooks specify "plasma or serum," but the determinations on identical blood using each give rather great differences. What are the normal values for cholesterol, using both serum and plasma?

Clifford W. Atherton, M.D., Peoria, Ill.

ANSWER.—It has been generally accepted that the total cholesterol concentration of the serum and of the plasma is the same, but normal values for the Bloor method should not be given without some explanation.

Grigaut, who presented the first colorimetric method of estimating cholesterol in the blood with the Liebermann-Burchard color reaction (*Compt. rend. Soc. de biol.* **68**:791, 1910), in 1913 presented data on simultaneous analyses of serum and plasma (Myers, V. C.: Practical Chemical Analysis of Blood, ed. 2, St. Louis, C. V. Mosby Company, 1924, p. 124) in which practically identical findings were found in serum and in plasma. It would not appear that this observation has been questioned, since some workers employ plasma while others use serum.

The Autenrieth and Funk method (*München. med. Wchnschr.* **60**:1243, 1913), which Bloor and many early workers in this country employed, was simply an adaptation of the Grigaut method for use with the Hellige colorimeter. Although Bloor when he first adapted this method to his alcohol-ether extract of blood saponified the extract with sodium ethylate (*J. Biol. Chem.* **23**:320, 1915), he later omitted the saponification when he found that the cholesterol esters also gave the color reaction (*ibid.* **24**:227, 1916). He observed that the results with the simplified method averaged 20 per cent higher than with the older procedure in which saponification was employed. Bloor suggested, as a possible explanation for the lower values obtained, the action of the strong alkali when saponification was employed. Many other explanations for this difference have been suggested by different workers. However, it remained for Gardener and Williams (*Biochem. J.* **15**:371, 1921) to note that esterified cholesterol reacts at a greater rate in development of color than does free cholesterol. Kelsey, in Bloor's laboratory, has verified this observation (*J. Biol. Chem.* **127**:15, 1939) and has shown that cholesterol palmitate gives 30 per cent more color than does free cholesterol. Since Sperry (*ibid.* **114**:125, 1936) has shown that the total cholesterol in the normal human serum averages 73.1 per cent cholesterol esters with a relatively constant ratio, this explains why the results with the commonly used Bloor (1916) method are about 20 per cent too high for total cholesterol.

Bloor obtained a range of values for total cholesterol of 190 to 310 mg. per hundred cubic centimeters of plasma for normal adults, with an average of 220 mg. for males and 240 mg. for females. This would be equivalent to a range of about 150 to 250 mg. for true cholesterol.

RUPTURE OF INTERVERTEBRAL DISK IN THORACIC SPINE

To the Editor:—I have never seen any discussion in The Journal of ruptured intervertebral disk in that area of the spine below the eighth cervical space and above the lower lumbar region. Is this condition never found in that region? Does the bony frame of the thorax lend support to the midspine so that no such mishap can occur? If so, since many cases of ruptured disk do not seem to have any definite history of trauma or disease, why does not the same occur in the thoracic area? At least one writer has stated that many instances of ruptured disks occur apparently spontaneously in the usual areas; may not this type of rupture occur also in the usually unreported area of the spine? A ruptured disk in the thoracic area, of course, would present a problem in diagnosis of more than average difficulty. An error in diagnosis would almost certainly occur unless an x-ray examination showed a noticeably narrowed interspace. Have any papers on this subject appeared?

Paul P. Halleck, M.D., Broadus, Mont.

ANSWER.—Rupture of an intervertebral disk may occur in any region of the spine in which the disk is found and motion is present between the contiguous vertebral bodies. The ruptures occur most commonly where the range of motion and the stresses and strains of physical activity are greatest. There is comparatively little movement in the normal thoracic spine because of the splinting effect of the ribs and the sternum. For this reason injuries to the intervertebral disk are relatively uncommon between the eighth cervical and the last thoracic vertebral disk interspace.

It is possible that ruptured disks in the thoracic region have occurred more often than they have been diagnosed. The attention of most physicians has been focused at the lumbosacral level and on the cervical spine, and few reports are available on protrusions of the thoracic disks. A small monograph entitled "The Intervertebral Disc," by F. Keith Bradford and R. Glen Spurling, published by Charles C Thomas of Springfield, Ill., and Baltimore in 1941, contains a reference to thoracic disks on page 106. They described the finding at operation of a herniation of a disk between the thoracic fourth and fifth vertebral bodies in 1 patient.

TRYPTOPHAN DEFICIENCY

To the Editor:—Can you give me information concerning the use of amino acids, particularly tryptophan, "to retard baldness, sex gland deterioration, malformation of tooth enamel and cataracts" as quoted from the R. and C. Medical Pocket Quarterly and apparently based on a study at the Johns Hopkins University Medical School, Baltimore?

Michael D. Moran, M.D., Farmington, N. M.

ANSWER.—Observations by Albanese and Buschke (*Science* **95**:584 [June 5] 1942) have shown that tryptophan deficiency in rats give rise to alopecia, sex gland deterioration, defective enamel formation and cataracts. There is as yet no published information regarding the prevention or treatment of such pathologic conditions in man with tryptophan or other amino acids.